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LINGUISTIC AREAS IN EUROPE:
THEIR BOUNDARIES AND POLITICAL
SIGNIFICANCE

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1. INTRODUCTION

The purpose of this paper is to show that definite relations exist between linguistic areas in Europe and the geography of the continent and that application of facts derived from a study of this science to frontier delimitation is valid and practicable. The work was planned and executed under the direction of Councillor Madison Grant, who has drawn on his studies of European anthropology and history, as well as on a wide knowledge of the European continent, to supply the writer with numerous notes besides carefully revising the final proof and making many valuable additions. It is regretted that limitations of space have necessitated restricting presentation of a number of fundamental relations to bare statements of fact. This deficiency is remedied in part by the list of sources given in the footnotes. The nationality of authorities cited

should be determined prior to consultation, as divergences of views corresponding to conflicting national aims are not infrequent.¹

Modern history has entered a stage in which determination of national boundaries is intimately connected with distribution of languages. International events in the past two centuries have been marked by constant endeavor to provide conformity of political and linguistic frontiers. The progress of western Europe in this respect is satisfactory. The eastern section of the continent contains problems which have defied diplomatic solution.

Linguistic areas in common with other data of geography have been largely determined by the character of the surface covered or delimited. Occurrences such as the expansion of Polish to the Carpathian barrier or the restriction of Flemish to the lowland of northwestern central Europe cannot be attributed to mere hap-hazard. Determination of linguistic boundaries, therefore, implies due recognition of selective influences attributable to surface features. But the influence of region upon expansion or confinement of language is far from absolute. The part played by economic factors will be shown in the following lines to have been of prime importance.

Considered as political boundaries, linguistic lines of cleavage have a twofold importance. They are sanctioned by national aspirations and they conform with physical features. Every linguistic area considered in this paper bears evidence of relation between language and its natural environment.² A basis of delimitation is therefore provided by nature. Eastern extension of French to the Vosges, confinement of Czech to a plateau enclosed by mountains, uniformity of language in open plains and river basins, all are examples of data provided by geography for the use of statesmen engaged in the task of revising boundaries.

Europe may be aptly regarded as a vast field of settlement where the autochthonous stock has again and again been swamped by successive flows of eastern and southern immigrants. The wanderings of these invaders have been directed in part into channels provided by Eurasian structural features. Within historic times Celts have been driven westward by Teutons, who in turn were pressed in the same direction by Slavs. The consequence is

¹ The writer gratefully records his appreciation of the generosity of many members of the Council of the Society for providing a special appropriation for the execution of the maps. Acknowledgment of important suggestions is also due to Professors Palmer, Le Compte and Seymour of Yale University, as well as to Professor Jordan of Columbia University.

² Linguistic maps accompanying this paper should, in every instance, be examined concurrently with good atlas sheets.

that few Frenchmen or Germans of our day can lay claim to racial purity. As a matter of fact, northern France is perhaps more Teutonic than Southern Germany, while eastern Germany is in some respects more Slavic than Russia. The political significance of race is, therefore, trifling.

Nationality, however, an artificial product derived from racial raw material, confers distinctiveness based on history. It is the cultivated plant blossoming on racial soil and fertilized by historical association. Language, the medium in which is expressed successful achievement or struggle and sorrow shared in common, therefore acquires cementing qualities. Its value as the cohesive power of nationality is superseded in rare instances by ideals similarly based on community of tradition or hope and in some cases of religion. Belgium and Switzerland afford good examples of such exceptional instances. Broadly, it may be submitted that the development of civilization in most countries has been marked by the progress of nationality, while nationality itself has been consolidated by identity of speech.

2. THE FRANCO-FLEMISH BOUNDARY

The westernmost contact between Romance and Teutonic languages occurs in French Flanders and Belgium. Starting at a few miles south of Dunkirk,³ the linguistic divide follows a direction which is generally parallel to the political boundary until, at a few miles east of Aire, it strikes northeast to Halluin, which remains within the area of French speech. From here on to Sicken-Sussen, near the German border, the line assumes an almost due east trend.

This division corresponds to the mountainous and depressed areas into which Belgium is divided. The upland has ever been the home of French. Walloon is but a modified form of the old *langue d'oïl*.⁴ Flemish, on the other hand, is a Germanic language which spread over Belgian lowlands as naturally as the Niederdeutsch dialects to which it is related had invaded the plains of northern Europe. This east-west line also marks the separation of the tall, blond, long-skull Flemings from the short, dark, round-skull Alpine Walloons.

³ G. Kurth, *La Frontière Linguistique en Belgique et dans le Nord de la France*. Mém. couronnés, Acad. R. Sci. Let. et Beaux-Arts de Belg., XLVIII, Vol. I, 1895, Vol. II, 1898, Bruxelles; Map, 1:400,000 published in Feb. 1900.

⁴ Cf. map: *Ausbreitung der Romanischen Sprachen in Europa*, 1:8,000,000. Gröber's Grundriss der Romanischen Philologie, Trübner, Strassburg, 1904-1906. See also Gillieron et Edmont, *Atlas Linguistique de la France*, Champion, Paris.

In northwestern France the language of the plain has steadily receded since the 13th century before the uplander's speech.⁵ At that time Flemish was spoken as far south as the region between Boulogne and Aire. The area spreading east of the Strait of Dover between the present linguistic boundary and a line connecting these two cities is now bilingual, with French predominating. It might be noted here, however, that Boulogne has been a city of French language since Frankish days.

Within Belgian territory the linguistic line has sustained slight modification in the course of centuries. The country may be conveniently divided into a northern section, the inhabitants of which consider Flemish as their vernacular, but who also generally know French, and a southern section peopled by French-speaking inhabitants who adhere to the use of Walloon dialects in the intimacy of their home life. A small area in eastern Belgium is peopled by Germans.⁶

The figures of the last (Dec. 31, 1910) Belgian census⁷ show that the Flemish provinces are bilingual, whereas the Walloon region is altogether French. Knowledge of French as an educational and business requirement accounts for its occurrence in Flanders. The Romance language, therefore, tends to supersede the Germanic idiom as a national vernacular. Utter absence of Flemish in the Belgian Congo constitutes perhaps the strongest evidence in favor of French as Belgium's national language.

The linguistic dualism is traceable to the period of the Roman conquest. Intercourse at that time between the Belgæ dwelling south of the Via Agrippa and the Romans who were pushing steadily northwards was intimate. The Latin of the Roman invaders modified by the Celtic and Germanic of the native populations gave birth eventually to the Walloon of subsequent times.⁸

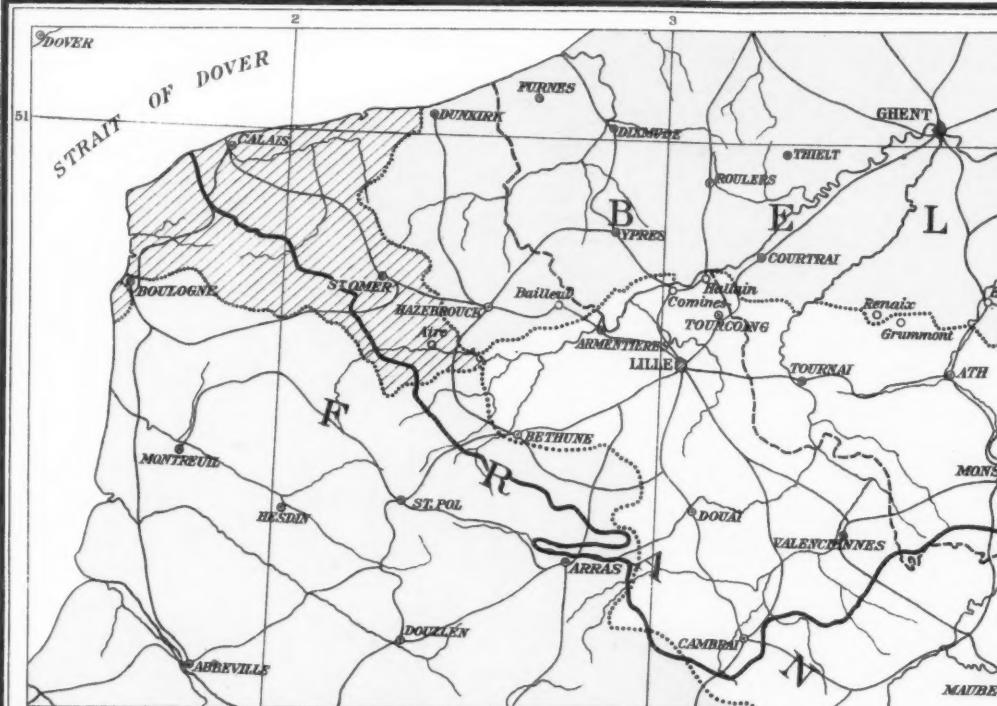
The Belgæ of the lowlands farther north, however, successfully resisted the efforts made by the Romans to conquer them. The marshes of their nether country and the forested area which was to be laid bare by the monks of the Middle Ages constituted a stronghold in the shelter of which Germanic dialects took root.

⁵ Kurth, *loc. cit.* Kurth's work is based partly on toponymic data; its value as an ethnographic document equals its importance as a contribution to the distribution of languages in western Europe. L. De Backer, *La Langue flamande en France*. Samyn, Gand, 1893.

⁶ N. Warker, *Die deutschen Orts- und Gewässernamen der Belgischen Provinz Luxemburg, Deut. Erde*, Vol. VIII, 1909, pp. 99, 189. Maps important.

⁷ *Statistique de la Belgique, Recensement général de 1910*, Vol. II, 1912, Vol. III, 1913, Bruxelles.

⁸ The Belgæ of Cæsar are probably represented by the Teutonic populations of northern France, Flanders and Batavia rather than by the Walloons.



THE FRANCO-FLEMISH LINGUISTIC BOUNDARY

from available sources.

French
 Walloon
 Flemish

German

Germany

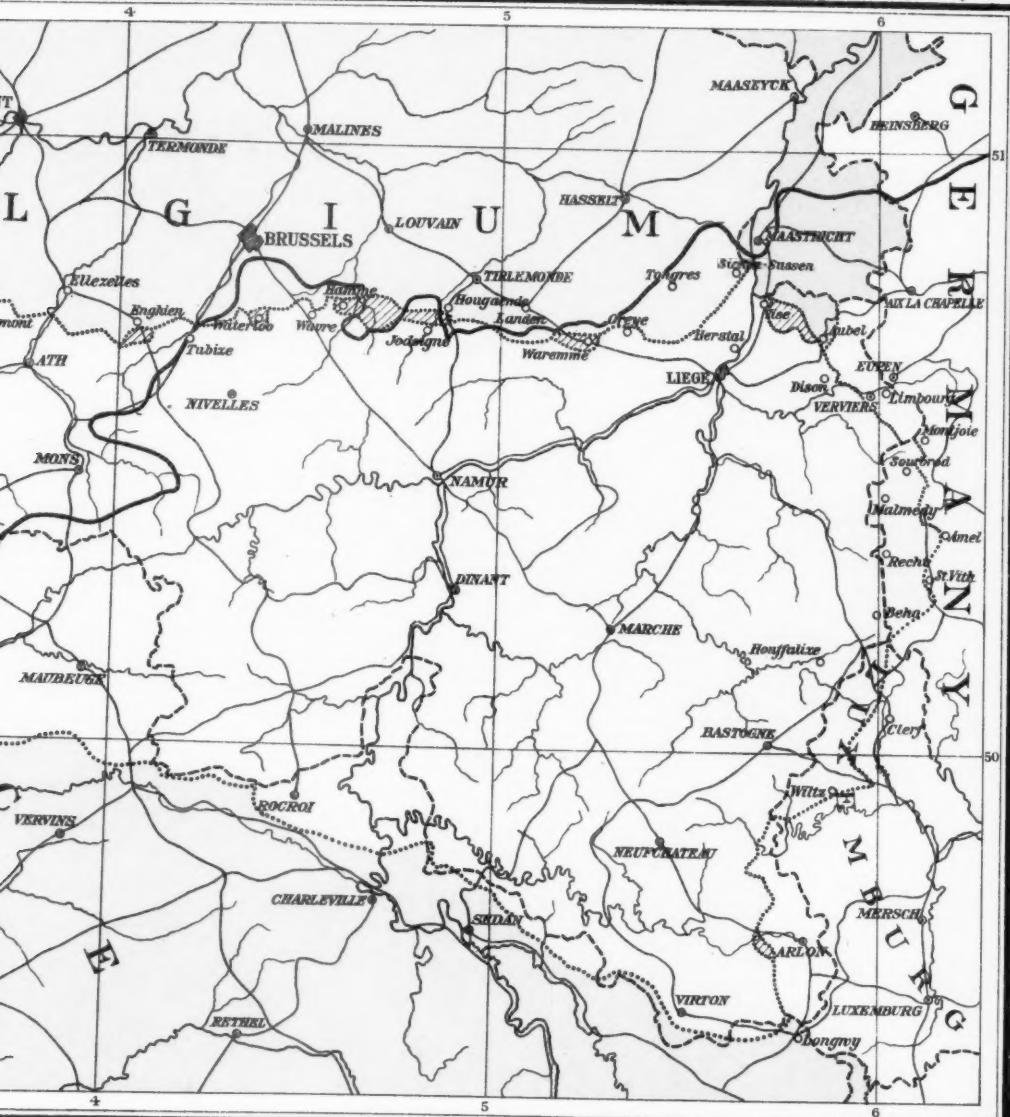
Dutch

Expansion of French since the XIIIth Century.

 Southern extension of the Flemish lowland

----- political boundaries.

Scale : 1:1,200,000
or 1 inch = 19 miles.



At a later date the growth of the temporal power of the Roman Church witnessed the establishment of a number of bishoprics over districts segregated irrespective of linguistic differences. Perhaps one of the most notable facts of Belgian history is found in the fact that its linguistic and political boundaries have never coincided. Every century is marked by renewal of the age-long clashes between the Germanic and Romance races which have been thrown in contact along the western end of the line of severance between the plains of northern Europe and the mountainous southland of the continent.

In recent years a keen struggle for predominance between Flemings and Walloons is observable in Belgium. Language had been adopted as the rallying standard of both parties. Aggravation of this feud may yet lead to secession. The Flemish provinces might then cast their political lot with the Dutch. The languages spoken in Holland and Flanders are practically identical. Religious differences alone have stood in the way of political fusion in the past. The revolt of the Netherlands from Spanish authority had led to the independence of Protestant provinces only. Flemish princes, swayed by religious scruples, refused to side with the Protestant communities whose political connection had been established by the Union of Utrecht in 1579. At present the severance of religious from political issues and the menace of absorption by Germany may drive the Flemings to join their close kinsmen of the lowlands on the north.⁹ A state formed by this union could be named the Netherlands in all propriety. Its geographical foundation would be secure. Walloons would then naturally revert to French allegiance. The coincidence of political and linguistic boundaries in the westernmost section of central Europe would thus become an accomplished fact.

3. THE FRANCO-GERMAN BOUNDARY

In its central section the long contact line between French and German languages conforms approximately with the political line dividing the two countries. Modifications which French frontiers underwent since the Treaty of Utrecht may be regarded as final adjustments in a prolonged process of adapting political to linguistic boundaries. The Napoleonic period of political disturbances brought about an abnormal extension of the northern and eastern line. Between 1792 and 1814 almost all of the territory of Belgium

⁹ Germany's violation of Belgian neutrality in 1914 was followed by endeavors to induce Flemings to favor annexation of their land to Germany on the plea of ancestral kinship.

and Holland was annexed and the eastern frontier extended to the Rhine. Foreign populations in Holland, Flanders, Rhenish Prussia and the western sections of Hesse and Baden passed under the administrative control centered at Paris. But their subjection to Napoleon's artificial empire was of relatively short duration. The German-speaking people in 1813 united in a great effort to drive the French across the Rhine. They were merely repeating the feat of their ancestors who at a distance of eighteen centuries had defeated the Latin-speaking invaders of their country led by the Roman Varus. Success in both movements was helped to a certain extent by community of feeling based on identity of language. In 9 A. D. the Romans were forced back to the Rhine from the line they occupied on the Weser. The treaty of Vienna restored French boundaries to the lines existing in 1790. French territory again reverted to the approximately normal boundaries which enclose members of the French-speaking family. The union of Frenchmen into a compact political body was shattered, however, by the treaty of Frankfurt in 1871, when France was obliged to cede important strips of French-speaking territories in Alsace-Lorraine to Germany.

The part to be played by Lorraine in the history of Franco-German relations was laid out by nature itself. The province has always been the seat of a wide pathway connecting highly attractive regions of settlement. It lies midway between the fertile plains of the Rhine and the hospitable Parisian basin. It is also placed squarely in the center of the natural route leading from Flanders to Burgundy. The region is physically part of France. It has therefore been inhabited mainly by French-speaking inhabitants. At the same time, the lack of a natural barrier on the east facilitated Teutonic incursions. In particular, the Moselle valley has favored easy access into Lorraine throughout history. In the Middle Ages and until the 18th century the province was part of the Empire and largely German speaking. This language still persists in the eastern parts. The region was thus a border land disputed first by two adjoining races and subsequently by two neighboring countries.

This long period of successive conflicts necessarily witnessed modifications of linguistic boundaries. Glancing as far back as the end of the Middle Ages, a slight westerly advance of the area of German speech may be ascertained for the period between the 10th and 16th centuries.¹⁰ From that time on, however, the regional

¹⁰ H. Witte, *Das Deutsche Sprachgebiet Lothringens und seine Wandlungen, etc.* *Forsch. z. Deutsch-Landes- u. Volksk.*, VIII, 1894, pp. 407-585.

gain of French has been in excess of previous German advances. Data obtained from place names often afford valuable clues to earlier distribution of languages in this region. Occurrences of the suffix "ange," which is the Frenchified form of the German "ingen," in names lying west of the present line show the extent of territory reclaimed by the French language.¹¹

Alsace is the region defined by the valley of the Ill. The wall of the Vosges Mountains marks its western limits. Its easterly extension attains the banks of the Rhine. This elongated plain appears throughout history as a corridor through which races of men marched and countermarched. The Alpine race provided it with early inhabitants. Romans subjugated the land in the course of imperial colonization. The province subsequently passed under Germanic and Frankish sway. Its entry into linguistic history may be reckoned from the year 842, when the celebrated oaths of Strassburg were exchanged in Romance and Teutonic vernaculars by Charles the Bald and Louis the German. The alliance of these two sovereigns against Lothair at this time marked the beginnings of the German destiny of Alsace. After 925 the province became part of the Teutonic domain and remained German except during the period of French occupation which lasted from 1681 to 1871.

A highway of migration cannot be the abode of a pure race. Its inhabitants necessarily represent the successive human flows by which it has been overrun.¹² The Alsatian of the present day is, accordingly, a product of racial mingling. But the blending has conferred distinctiveness, and Alsatians claiming a nationality of their own find valid arguments in racial antecedents no less than in geographical habitation. The red soil of their fertile plains symbolizes the native land in their minds as it reveals itself to perception with the attribute of unity. Alsatians have responded to such an environment to the extent of representing a distinct group in which the basal Alpine strain has been permeated by strong admixtures of Teutonic blood. The confusion of dark and fair physiognomies represents the two elements in the population.¹³ In a broader sense the Alsatians are identical with the Swiss population to the south and the Lorrainers and Walloons to the north. The districts occupied by all these people once constituted the Middle Kingdom of Burgundy.

¹¹ L. Gallois, *Les Limites linguistiques du français*, Ann. de Géogr., IX, 1900, p. 215.

¹² Anthropologic data for the southwestern section of Alsace are instructive. The generation of a transition type between the short and sturdy Alpine type and the "sesquipedal" Teuton is observable. Cf. Ripley, *The Races of Europe*, Appleton, New York, 1899, pp. 225-6.

¹³ French writers claim an average brunetteness of 70% for Alsace and point thereby to the predominance of the Celtic strain.

Alsace was a province of purely German speech until the end of the 18th century. French took solid foothold mainly after the revolution and during the 19th century. An enlightened policy of tolerance towards the province's institutions cemented strong ties of friendship between the inhabitants and their French rulers. Alsatian leanings towards France were regarded with suspicion by the victors of 1871, who proceeded to pass prohibitionary laws regarding the use of French in schools, churches or law courts. These measures of Germanization were attended by a notable emigration to France. In 1871 there were 1,517,494 inhabitants in Alsace-Lorraine. The number dwindled to 1,499,020 in 1875 in spite of 52.12% excess of births over deaths.

Nancy by its situation was destined to welcome Alsatians who had decided to remain faithful to France. The number of immigrants it received after the Franco-Prussian war was estimated at 15,000.¹⁴ Pressing need of workingmen in the city's growing industrial plants intensified this movement. Alsatian dialects were the only languages heard in entire sections of the urban area. Peopled by about 50,000 inhabitants in 1866, Nancy's population jumped to 66,303 in 1876. Metz, on the other hand, with a population of 54,820 inhabitants in 1866, could not boast of more than 45,675 citizens in 1875. The census taken in 1910 raised this figure to 68,598 by including the unusually strong garrison maintained at this point.

The present line of linguistic demarcation in Alsace rarely coincides with the political boundary. Conformity is observable only in stretches of their southernmost extension. East and southeast of Belfort, however, two areas of French speech spread into German territory at Courtarion and Montreux.

In the elevated southern section of the Vosges the line runs from peak to peak with a general tendency to proceed east of the crest line and to reveal conspicuous deflections in certain high valleys of the eastern slope. Its irregularity with respect to topography may be regarded as an indication of the fluctuation of racial sites in early historical times.

From Bären Kopf to about 10 miles beyond Schlucht Pass the mountainous divide and linguistic line coincide. Farther north, however, French prevails in many of the upper valleys of the Alsatian slope. This is true of the higher sections of the Weiss basin, as well as the upper reaches of the Bruche. At a short dis-

¹⁴ R. Blanchard, *Deux Grandes Villes Françaises*. *La Géogr.*, XXX, Nos. 2-6, 1914, pp. 120-121.

tance south of the sources of the Liepvre, parts of the valley of Markirch (Sainte-Marie-aux-Mines) are likewise French. Here, however, the influx of German miners who founded settlements as far back as the 17th century have converted the district into an area linguistically reclaimed by Germans. Altogether it was estimated that in 1910 French was spoken by 204,262 inhabitants of Alsace-Lorraine out of a total population of 1,814,564.¹⁵

Two methods of indicating the presence of a French element in Alsace-Lorraine are given in the map of this region accompanying this article. Percentages according to administrative districts¹⁶ have been contrasted with actual extension of French predominance.¹⁷ The map shows concordance of French and German authorities regarding the German character of Alsace, as well as the French nature of a substantial portion of Lorraine. The Rhine valley, a natural region, appears throughout as an area of German speech. Viewed in this light, French claims favoring extension of the country's western boundary to the left bank of the Rhine deserve consideration only if grounded on Alsatian preference for French nationality. They cannot rest on a sound geographical foundation.

Of all so-styled natural boundaries, a river perhaps is the most unsatisfactory.¹⁸ Conventional representation of its course on paper provides the map with black lines which on casual inspection impart semblance of a break in regional continuity. Reasoned examination, however, discloses the similarity of the land extending beyond both banks. Allowance being made for difference of elevation between the upper and lower courses of a river, the unit region is obviously constituted by the entire basin. All the data of observation reveal regional unity in the valley of the Rhine.

The political case of Alsace-Lorraine, viewed from the linguistic standpoint, may be summed up as follows: Alsace is German. Areas of French in this province consist of intrusions of minor importance. It is evident that the Vosges Mountains have prevented expansion of French towards the valley of the Rhine. Lorraine, however, which was also German, was devoid of a natural barrier that might have arrested the spread of French. Consequently it has been partly regained by that language.

Beyond Alsace, French and German meet along a line which

¹⁵ *The Statesman's Yearbook*, 1914, p. 934.

¹⁶ After the language map of Alsace-Lorraine in Andree's *Handatlas*, Pl. 67-68, 6th ed.

¹⁷ After Gallois' map, Pl. IV, Vol. IX, *Ann. de Géogr.*, 1900.

¹⁸ Lord Curzon, *Frontiers, The Romanes Lectures*, Clarendon Press, Oxford, 1907.

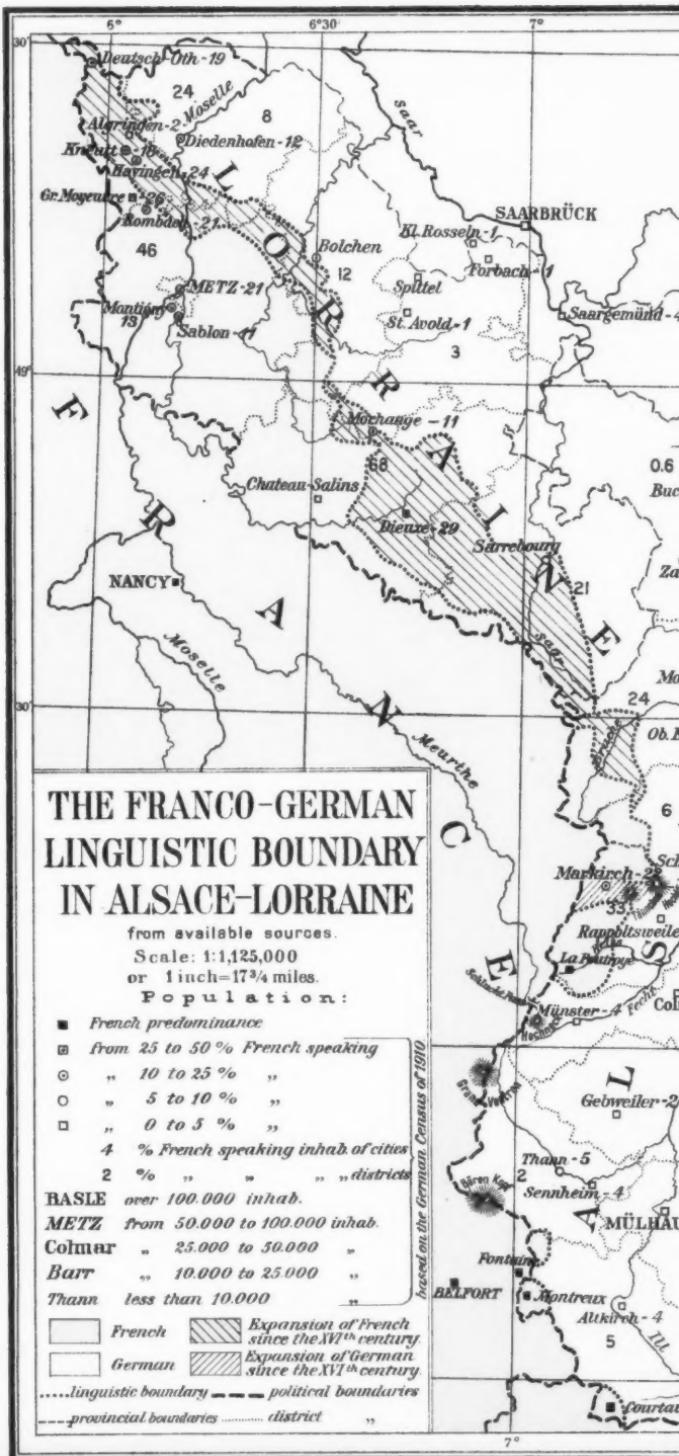
extends across western Swiss territory to the Italian frontier.¹⁹ Its present course has been maintained since the fifteenth century.²⁰ Beginning at Lueelle, the line crosses the Jura mountains west of Solothurn. Lake Neuchâtel is surrounded on all sides except the northeast by French-speaking communities. The western and southern shores of Lake Morat are likewise French. Fribourg, a city in which the struggle for linguistic supremacy is strenuous, lies at the edge of French-speaking territory. The line becomes better defined in the upper valley of the Rhone, where it coincides with the divide between the Val d'Anniviers and the Turtmann Thal. The construction of the Simplon tunnel appears to have been the cause of an extension of French influence in this region and recession of German from the Morge valley to the east of Sierre lies within the memory of living natives.

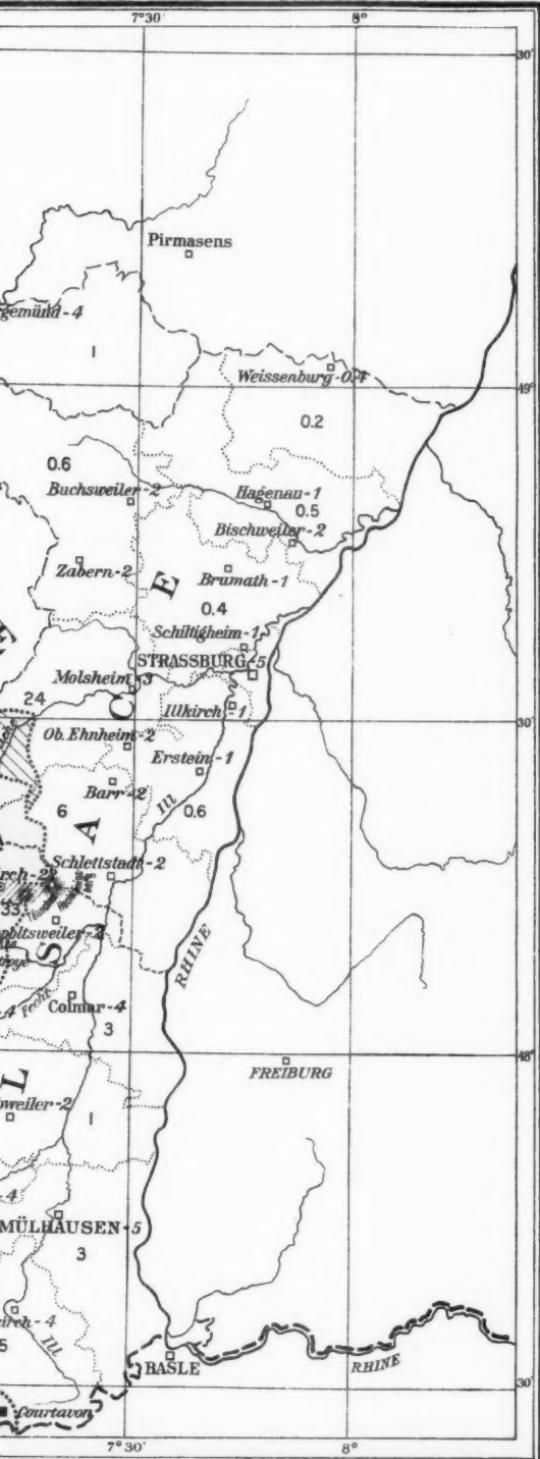
The origin of linguistic differences in Switzerland may be traced to the early history of the country. At the time of Cæsar's conquests Helvetia, then peopled by Celts, became subjected to Rome's imperial rule. Later, during the period of invasions, the Helvetians were conquered by the Burgundians, a Germanic tribe, who settled in the western part of the country. A fusion of the two peoples followed this conquest. The Celtic and Latin languages then prevailing gave birth to French which became essentially the speech of the Jura highlanders. German, on the other hand, is a relic of Teutonic invasions in eastern and central Switzerland. In the 6th century the Alemanni took advantage of the weakening of the Burgundian kingdom to spread beyond the Aar and overrun the attractive lake district. By the 11th century they had succeeded in imposing their language on the native population of the Fribourg and Valais country. Religious struggles beginning in the 15th century and maintained to the 17th century furthered the westerly advance of the Germans.

The history of Switzerland shows pertinently that, at bottom, language does not always suffice to constitute nationality. Diversity of language has not impaired Switzerland's existence as a sovereign nation. Racial lack of unity in its population has likewise failed to weaken national feeling. The indomitable determination of Swiss to protect the liberal institutions and the religion around which their national life revolved has maintained their independence throughout the course of centuries.

¹⁹ P. Langhans, *Die Westschweiz mit deutscher Ortsbenennung 1:500,000.* Deut. Erde, V, 1906, Pl. 5.

²⁰ L. Gallois, *Les limites linguistiques du français.* Ann. de Géogr., Vol. IX, 1900, p. 218.





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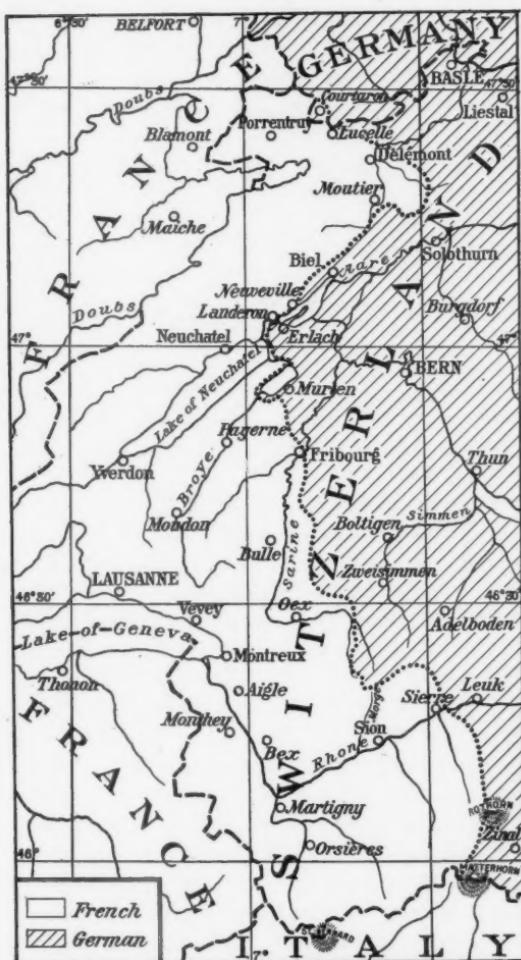


FIG. 1—The boundary between French and German in Switzerland.
Scale, 1:1,435,000.

4. THE AREA OF GERMAN SPEECH

The area of German speech is interposed between the territories of Slavic and Romance languages. Niederdeutsch or Plattdeutsch, the language of the plain, is restricted to the extensive northern lowlands. Dialects spoken in Westphalia, Holstein, Mecklenburg,

Brandenburg and Prussia enter into its composition. The wealth of words in this tongue seems to indicate that ease of life on the plain favored greater development of thought. Relative sterility of the vocabulary derived from mountainous sections of central and southern Germany is brought out by contrast.

Oberdeutsch is the German of the highland. It comprises the Bavarian, Swabian and Alemannic dialects of Bavaria, Wurtemberg and Baden. Its adoption as the literary language of all German-speaking people became well established in the Middle Ages. Luther's translation of the Bible, written in a combination of Upper and Middle German, contributed no mean share in the diffusion of the language. Printed German also followed this form. Its use has been favored by Germany's most noted writers since the 17th century. It is fast becoming the language of the educated classes. Its dissemination by the agency of schools and newspapers tends to convert it eventually into the only idiom that will survive within German boundaries.

The transition from the northern plain of Germany to high central regions is represented on the surface by a zone of intermediate uplands in Saxony, Lusatia and Silesia. This area is also characterized linguistically by a transitional form of speech between Niederdeutsch and Oberdeutsch.²¹ The greater similarity, however, of this intermediate language to Oberdeutsch is observable to the same extent that the rising land over which it is distributed presents greater analogy to the mountainous region towards which it tends. The transitional dialects include Frankish, Hennebergian and Saxon. They occur in the middle Rhineland, Hesse, Thuringia and Saxony.

Outside this central mass of Germans living in Germany and Austria, the language prevails in the Baltic provinces of Russia, where Protestantism is strongly established. This region was known as the German provinces up to 1876. In that year substitution of Russian to German inaugurated Russification of the area by the government. Colonies of Germans are also found in southwestern Russia from the headwaters to the mouth of the Dniester. The valley of this river as well as that of the Dnieper was peopled by peasants who emigrated from Würtemberg, Saxony and Switzerland during the reign of Catharine the Great. Many of the settlements still bear German names. The presence of Teutons in this part of Russia is devoid, however, of political significance.

²¹ Cf. Sheets 12a, Europa, Fluss- Gebirgskarte, and 12c, Europa, Sprachen and Völkerkarte, both 1:12,000,000, in Debes' Handatlas.

5. THE DANISH-GERMAN BOUNDARY

Lack of conformity between political and linguistic boundaries along the Danish-German frontier has caused ceaseless strife between the two nationalities. Denmark's hold on Schleswig-Holstein prior to 1866 had engendered bitter feeling among Germans who considered the subjection of their kinsmen settled on the right bank of the Elbe estuary as unnatural. After Prussia had annexed the contested region, it was the Danes' turn to feel dissatisfied and to claim the districts occupied by their countrymen.

The present Danish-speaking population of Schleswig-Holstein is variously estimated at between 140,000 and 150,000. These subjects of the Kaiser occupy the territory south of the Danish boundary to a line formed by the western section of the Lecker Au, the southern border of the swampy region extending south of Renz and the northern extension of the Angeln hills. Between this line and the area in which German is spoken a zone of the old Frisian tongue of Holland survives along the western coast of the peninsula. Frisian is also spoken in the coastal islands.

The degree to which linguistic variations adapt themselves to physical configuration is admirably illustrated in this case by the southerly extension of Danish along the eastern section of the peninsula where persistence of the Baltic ridge appears in the hilly nature of the land. The Niederdeutsch of the long Baltic plain also continued to spread unimpeded within the low-lying western portion of the narrow peninsula until its northerly expansion was arrested by uninhabited heath land. The presence of Frisian along the western coast is undoubtedly connected with the adaptability of Frisians to settle in land areas reclaimed from the sea.

The province of Schleswig began to acquire historical prominence as an independent duchy in the 12th century. Barring few interruptions its union with the Danish crown has been continuous to the time of the Prussian conquest. In 1848 both Schleswig and Holstein were disturbed by a wave of political agitation which expressed itself in demands for the joint incorporation of both states in the German Confederation. The extent to which the mass of the Danish inhabitants of the duchies took part in this movement is open to historical controversy. Holstein was an ancient fief of the old Germano-Roman Empire. Its population has always been largely German. But the duchy of Schleswig is peopled mainly

by Danes. By the terms²² of the Treaty of Prague of Aug. 23, 1866, both Austria and Prussia had agreed to submit final decision on the question of nationality to popular vote. The provisions of the clause dealing with the referendum, however, were not carried

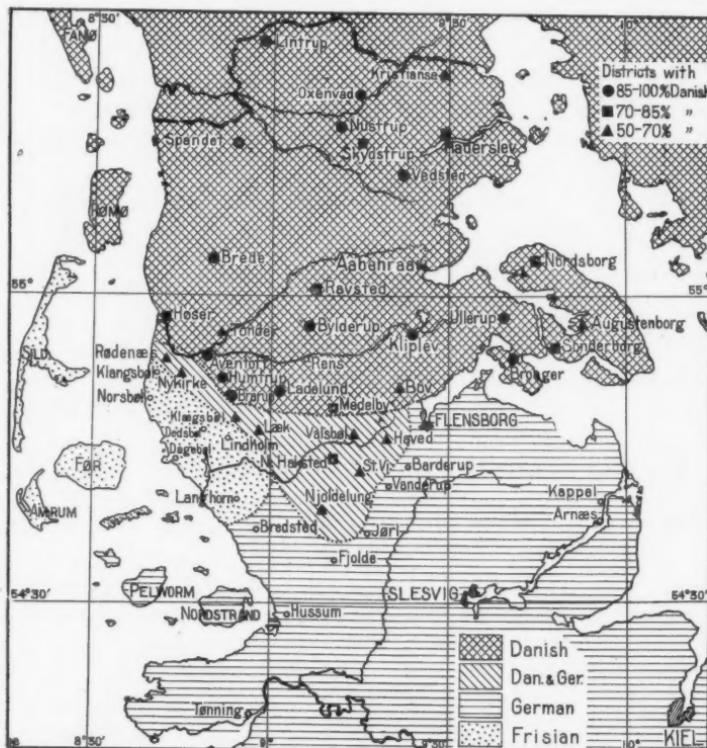


FIG. 2.—Sketch map of Schleswig-Holstein showing languages spoken. According to the Danish viewpoint. Scale, 1:1,200,000 (after Rosendal based on Clausens and Heyers.)

out, and on Jan. 12, 1867, Schleswig was definitely annexed by Prussia.²³

Incorporation of the Danish province was followed by systematic

²² [Translation]: Art. V. His Majesty the Emperor of Austria transfers to His Majesty the King of Prussia all the rights which he acquired by the Vienna Treaty of Peace of 30th October, 1864, over the Duchies of Holstein and Schleswig, with the condition that the populations of the Northern Districts of Schleswig shall be ceded to Denmark if, by a free vote, they express a wish to be united to Denmark. E. Herstlet, *The Map of Europe by Treaty*, Vol. III, p. 1722, Butterworths, London, 1875.

²³ A later treaty signed by Austria and Prussia at Vienna on October 11, 1878, suppressed the referendum clause, which had never been viewed with favor by the German Government.

attempts to Germanize the population²⁴ through the agency of churches and schools. In addition, a number of colonization societies, such as the "Ansiedelungs Verein für das westliche Nord-schleswig" founded at Rödding in 1891²⁵ and the "Deutsche Verein

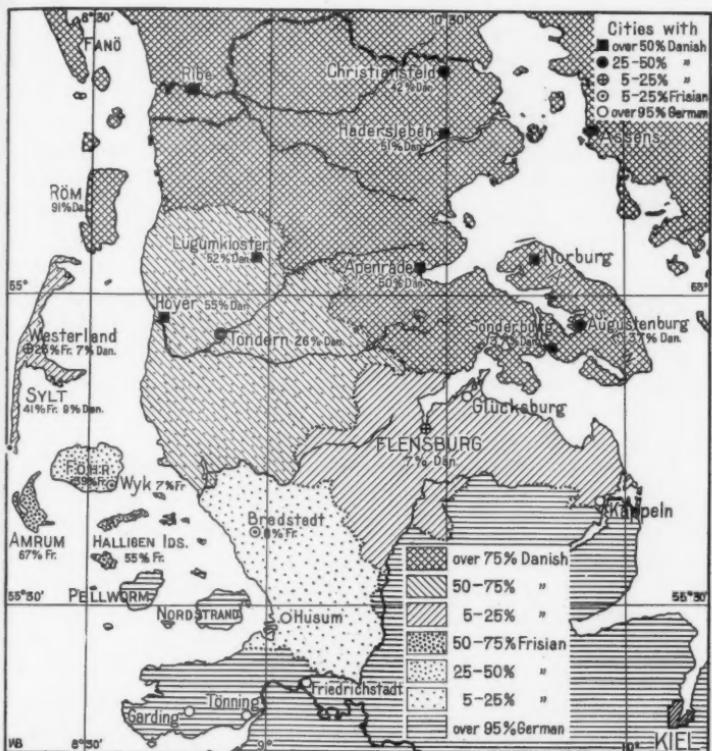


FIG. 3—Sketch map of Schleswig-Holstein showing languages spoken. According to the German viewpoint. Scale, 1:1,200,000. (Based on maps on pp. 59, 60 Andree's Handatlas, 8th ed.)

für das nördliche Schleswig," were formed to introduce German ownership of land in Danish districts. The final years of the 19th century in particular constituted a period of strained feeling between Danes and Germans owing to unsettled conditions brought about by duality of language and tradition.

At present the problem of Schleswig is considered settled by the German government. A treaty signed on Jan. 11, 1907, between

²⁴ M. R. Waultrin, *Le rapprochement dano-allemand et la question du Schleswig*. Ann. Sci. polit., May 15, and July 15, 1908.

²⁵ L. Gasselin, *La Question du Schleswig-Holstein*, Rousseau, Paris, 1909.

the cabinets of Berlin and Copenhagen defined the status of the inhabitants of the annexed duchy. The problem of the "Heimatlose," or citizens without a country,²⁶ was solved by recognition of the right of choice of nationality on their part. The German government considered this measure as satisfying the aspirations of its subjects of Danish birth. Nevertheless, the acquiescence of Danes living in Germany to any solution other than the adoption of linguistic boundaries as frontiers between Denmark and Germany remains doubtful. The standpoint of speech gives evidence of the thoroughly Danish character of northern Schleswig. The southern part of this province together with the whole of Holstein is undoubtedly German.

6. THE ITALO-GERMAN BOUNDARY

The southern boundary of Germanic speech abuts against Italian from Switzerland²⁷ to the Carinthian hills. Along this contact zone a notable intrusion of the Romanic tongue within the Austrian political line is observable in the Tyrol. This foreign area lacks homogeneity, however, for it is Italian proper in western Tyrol and Ladin in its eastern extension.

The southerly advance of German in the mountainous province has followed the valleys of the Etsch and Eisack, showing thereby that the channels through which mountain waters flowed towards the Adriatic also facilitated transit of goods and the language of the traders from the German highlands of central Europe to the Mediterranean. A steady current of freight has been maintained in a southerly course along this route since the origins of continental commerce in Europe. By the Middle Ages numerous colonies of German merchants had acquired solid footing along the much-traveled road over the Brenner Pass, which connected Augsburg and Venice.²⁸

This protuberance of German occupies the valley of the Etsch south of its confluence with the Eisack. The divide between the two languages has its westernmost reach at Stelvio near Trafoi.²⁹ The junction of Swiss and Austrian political boundaries at this point corresponds to the contact between the German of the Tyrol and the Romonsh idioms of Engadine. Thence the linguistic line of separation skirts the base of the Ortler massif and subsequently coincides with the watershed of the Etsch and Noce rivers.

²⁶ L. Gasselin, *loc. cit.*, p. 206.

²⁷ Blocher u. Garraux, *Die deut. Ortsnamenformen in Westschweiz*. Deut. Erde, V, 1906, p. 170.

²⁸ O. Noel, *Histoire du Commerce du Monde*, II, pp. 148-168. Plon, Paris, 1891.

²⁹ B. Auerbach, *Races et Nationalités en Autriche-Hongrie*, Alcan, Paris, 1898, p. 86.

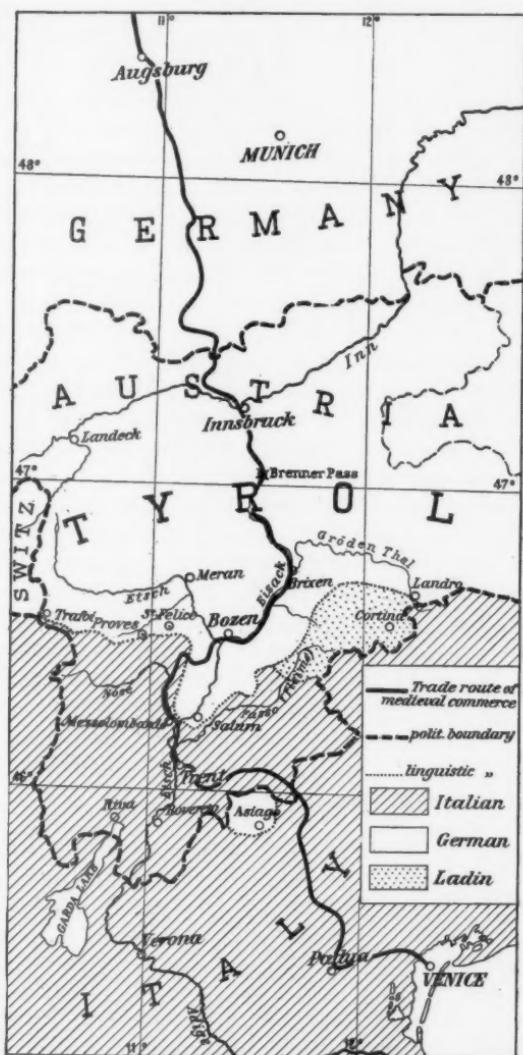


FIG. 4—Sketch map of the Trentino showing languages spoken.

Scale, 1:2,400,000.

Ladin settlements begin north of the Fleims valley³⁰ and spread beyond the Gröden basin to Pontebba and Malborghet, where the meeting of Europe's three most important linguistic stocks, the Romanic, Germanic and Slavic, occurs.

The Italian section of the Tyrol constitutes the Trentino of present day Italian irredentists. As early as 774 Charlemagne's division of the region between the kingdoms of Bavaria and of Italy had implied recognition of linguistic variations. But the importance of maintaining German control over natural lines of access to southern seas determined his successors to award temporal rights in the southeastern Alps to bishops upon whose adherence to Germanic interests reliance could be placed. The bishopric of Trentino thus passed under the Teutonic sphere of influence which is preserved to-day by the political union of the territory of the old see to the Austrian Empire. Definite annexation of the Trentino to the province of Tyrol took place in 1815.

In its eventful history during the present millennium the Tyrol has been the cockpit of Germano-Romance clashes. A lively trade competition between German and Italian traders has ever been maintained within its borders. During the era of religious upheavals the Germans rallied to the cause of reformation, while the Italian element remained faithful to the authority of the Vatican. Contact with the Teutonic element appears to have failed, however, to eradicate or modify the Italian character of the region's institutions or its life.³¹ In this respect the colossal statue of Dante in front of the main railway station in the city of Trent symbolizes faithfully the aspirations of the majority of the inhabitants of the Trentino.

7. THE ITALO-SLAVIC BOUNDARY

The Adriatic provinces of the Austro-Hungarian Empire are peopled mainly by Italians and Slavs. German and Hungarian elements in the population consist of civil and military officials as well as of merchants. From an ethnological and linguistic standpoint the maritime district is Italian or Slav according to its elevation. The Romanic stock forms the piedmont populations, while the dwellers of the hilly coast chains are of Slavic issue and speech.

The western coast of the Istrian peninsula is an area of Italian speech. The vernacular of Dante is, however, feebly represented

³⁰ Schneller, Deutsche u. Romanen in Südtirol u. Venetien, Petermanns Mitt., 1877, pp. 365-385.

³¹ A. Galanti, I Tedeschi sul versante meridionale delle Alpi, Typ. Acad. Lincei, Rome, 1885, p. 185.

in the Dalmatian islands and on the Illyrian coast.³² It is generally confined to urban centers. Zara, Spalato, Sebenico, Ragusa and Cattaro³³ contain flourishing colonies of Italians whose secular commercial enterprise has contributed to establish prevalence if not predominance of their mother tongue in the region. Outside of these cities the Italian element wherever present is restricted to littoral strips. The Slavs invariably occupy the inland plateau and the slopes extending seaward.

The Istrian region of predominant Italian speech consists of the western peninsular lowland extending south of Triest³⁴ to the tip of the promontory beyond Pola.³⁵ Istrians, to whom Italian is a vernacular, form over a third of the peninsula's population. The Slavs of the Karst and terraced sections constituting the balance belong to the Roman Catholic faith, but have no other common bond with their Italian countrymen.

Settlement by Slavs of the hills dominating the Adriatic appears to have taken place continuously between the 9th and 17th centuries. Feudal chiefs of medieval times first resorted to this method of developing the uncultivated slopes and highlands of the eastern coast. The Venetian republic and the Austrian government adopted similar measures of colonization. Slavic tribes hard pressed by their kinsmen or by Tatars from the east thus found refuge in the mountainous Dalmatian coastland under the ægis of western nations. A traveler taking ship to-day and sailing from harbor to harbor along the shores of the eastern Adriatic could readily notice numerical predominance of the descendants of Slavs who, for that section of the world, constitute the mass of toilers in every walk of life, and who, sooner or later, will probably erect a political fabric on the foundation of their linguistic preponderance.

8. THE AREA OF FINNISH SPEECH

The eastern half of the European landmass contains a region of excessive linguistic intermingling³⁶ along the contact zone of the Germanic and Slavic races. The Finns occupying the northernmost section of this elongated belt are linguistically allied to the

³² It is estimated that, in all, about 18,000 Italians live in Dalmatia.

³³ Italian predominates in both Zara and Spalato, the latter city being second in commercial importance along the Dalmatian coast.

³⁴ The city of Triest is peopled mainly by Italians. Its suburbs, however, are inhabited by crowded Slavic settlements. The census of 1910 shows 142,113 Italians, 37,063 Slovenes, 9,689 Germans and 1,442 Croats. For Istria returns of the same year give 147,417 Italians, 168,184 Serbo-Croats, and 55,134 Slovenes.

³⁵ M. Wutte, *Das Deutschtum im österreichischen Küstenland*. Deut. Erde, VIII, 1909, p. 202.

³⁶ H. Nabert, *Verbreitung der Deutschen in Europa*, 1:925,000. Flemming, Glogau.

Turki. Physically they constitute the proto-Teutonic substratum of the northern Russians with whom they have been merged. Their land was transferred from Sweden to Russia in 1808. Autonomy conceded by the Czar's government until rescinded by the imperial decree of Feb. 15, 1899, provided the inhabitants with a tolerable political status. The opening years of the present century marked the inception of a policy of Slavicization prosecuted with extreme vigor on the part of the provincial administrators.

The area of Finnish speech forms a compact mass extending south of the 69th parallel to the Baltic shores. Its complete access to the sea is barred by two coastal strips in the Gulfs of Bothnia and Finland, in both of which Swedish predominates in varying percentages.³⁷ The group of the Aland Islands, although included in the Czar's dominions, are also peopled by Swedes all the way to the southwestern point of Finland.³⁸

This broken fringe of Swedish is conceded to be a relic of the early occupation of Finland by Swedes.³⁹ The Bothnian strip is remarkably pure in composition. The band extending on the northern shore of the Gulf of Finland, however, contains enclaves of the Finnish element. This is ascribed to an artificial process of "Fennification" resulting from the introduction of cheap labor in the industrial regions of southern Finland. Slower economic development of the provinces of the western coast, on the other hand, tends to maintain undisturbed segregation of the population.

9. THE AREA OF POLISH SPEECH

South of the Baltic the unbroken expanse now peopled by Germans merges insensibly into the western section of the great Russian plain. This extensive lowland is featureless and provides no natural barriers between the two empires it connects. The area of Polish speech alone intervenes as a buffer product of the basin of the Middle Vistula. The region is a silt-covered lowland which has emerged to light subsequently to the desiccation of a system of glacial lakes of recent geological age. It appears to have been inhabited by the same branch of the Slavic race since the beginning of the Christian era. It was the open country in which dearth of food and the consequent inducement to migration did not exist. The development of Poland rests primarily on this physical foundation. Added

³⁷ *Atlas de Finlande, carte 46, Soc. de Géogr. de Finlande, Helsingfors, 1911.*

³⁸ K. B. Wiklund, *Språken i Finland, 1880-1900, Ymer, 1905, 2, pp. 132-149.*

³⁹ R. Saxen, *Répartition des Langues. Fennia, 30, 2, 1910-1911, Soc. de Géogr. de Fin., Helsingfors, 1911.*

advantages of good land and water communication with the rest of the continent likewise contributed powerfully to the spread of Polish power, which at one time extended from the Baltic shores to the coast of the Black Sea.

The language is current at present within a quadrilateral the angles of which are determined by the Jablunka pass in the Carpathians, Zirke on the Wartha, Suwalki in the eastern Masurian region and Sanok on the San. A northern extension is appended to this linguistic region in the form of a narrow band which detaches itself from the main mass above Bromberg and reaches the Baltic coast west of Danzig. In sum, from the Carpathians to the Baltic, the valley of the Vistula constitutes both the cradle and the blossoming field of Polish humanity and its institutions. In spite of the remoteness of the period of their occupation of the land, these children of the plains never attempted to scale mountainous slopes. The solid wall of the western Carpathians between Jablunka and Sanok, with its abrupt slopes facing the north, forms the southern boundary of the country.

This unit region in the midst of the diversity of the surface of the European continent has produced a unit language in the varied stock of European vernaculars. Uniformity of speech was thus the result of the unifying influence of a region characterized by a common physical aspect. Nevertheless, similarity of physical type among all individuals speaking Polish does not exist. Marked anthropological differences are found between the Poles of Russian Poland and of Galicia.⁴⁰ They correspond to the classification of northern Slavs into two main groups, the northernmost of which comprises the Poles of Russian Poland, together with White and Great Russians. Traces of Finnish intermixture can still be detected among them, in spite of the process of Slavicization which they have undergone. The Poles of Galicia, on the other hand, like the Ruthenians and Little Russians, reveal crossing of autochthonous populations with Asiatic and Mongoloid invaders of Europe.⁴¹

The southeastern extremity of the language attains the sources

⁴⁰ J. Talko-Hryncewicz, *Les Polonais du Royaume de Pologne d'après les données anthropologiques recueillies jusqu'à présent*. Bul. Int. Ac. Sc. Cracovie, Classe des Sc. Math. et Nat. Bul. Sc. Nat., Juin 1912, pp. 574-582.

⁴¹ Southern Poland was overrun by Mongolians during their third invasion of Europe. The Asiatics were attacked near Szczelow on March 18, 1241, by an army of Polish noblemen recruited from Sandomir and Cracow. The defeat of the Christians enabled the invaders to plunder the latter city, besides opening the way for incursions farther north in the course of which they penetrated into Silesia by way of Ratibor and marched towards Breslau. Near Liegnitz an army of 30,000 Europeans was defeated again on April 9th of the same year. These disasters were followed by a westerly spread of the Tatar scourge. Traces of its passage can still be detected among Poles.

of the Moravka, an affluent of the Ostrawica. In this district the line of demarcation between Ruthenians and Poles passes through Tarnograd and along the San valley. Its southern extension skirts the foothills through Rymanow, Dukla, Zmigrad, Gorlica and Gribow.⁴² Thence to Jablunka it merges with the political boundary.

In its western section the physical boundary coincides for all practical purposes with the ethnographic line of division. The Polish-speaking Gorales mountaineers have never aspired to cross the divide of the Beskid Mountains. The result is that the gentler slopes of the southern side are peopled altogether by Slovaks, while habit and custom have prevented the Podhalians or Polish shepherds inhabiting the high valley of the Tatra from leading their flocks to the southern grazing slopes which form part of the Hungarian domain.⁴³

Changes in the aspect of the land resulting from human activity provide an easily observable boundary between the territory inhabited by Poles and that occupied by Ruthenians. The first, proceeding from the Vistula lowland, are now scattered over a territory in which deforestation and large areas of tilled soil bespeak prolonged human occupancy of the land. The latter, coming from the Pontic steppes, reached the Carpathian slopes much later than their western neighbors. Consequently, only 20% of the surface of the western Carpathians is now available as prairie and pasture land, whereas the percentage of grazing land in the eastern section of the mountain chain is twice as high.⁴⁴ The area of ploughed land in the western region covers between 40 and 50% of the surface. In the east it barely varies between 5 and 10%. Again, the Polish section is practically clear of the forests which cover in contrast from 50 to 60% of the eastern Carpathians. Similar differences can be noted in the valleys up to an altitude of about 2,300 ft. Within them the proportion of ploughed land constitutes 88% of the surface in the Polish section. In the Ruthenian areas they do not exceed 15%.

⁴² The Poles constitute the majority in the population of many cities in eastern or Russian Galicia. In Niederle's list Bobrka, Muszyna, Sanok, Lisko, Sambor, Peremysl, Rawaruska, Belz, Zolkiew, Grodek, Ceshanow, Stryj, Kalusz, Stanislawoff, Kalomya, Tarnopol, Husiatyn, Buczacz, Sokal and Trembowla are credited with over 50% Poles in their population. On the other hand, the predominance of German in the cities of Biala, Sczerzec, Dolina, Bolechow, Nadworna, Kossew, Kuty, Zablotow and Brody is attributed by the same authority to the Jewish element present. L. Niederle, *La Race Slave*, Alcan, Paris, 1911. A digest in English of his conclusions will be found in *Ann. Rep. Smiths. Inst.*, 1910, Washington, 1911, pp. 599-612.

⁴³ E. Reclus, *Géogr. Univ.*, Vol. III, *Europe Centrale*. Hachette, Paris, 1878, p. 396.

⁴⁴ E. Romer, *Esquisse Climatique de l'Ancienne Pologne*. Bul. de la Soc. Vaud. des Sc. Nat., 5e Sér., Vol. XLVI, June, 1910, p. 231.

On the southwestern border the line attains the Oder in the vicinity of Bohumin. Here a number of localities in the Teschen country are claimed alike by Czechs and Poles. The increasing use of Polish and German, however, tends to invalidate the claims of Bohemians.⁴⁵ A transition zone between Czech and Polish exists here and is characterized by a local dialect of mixed language.

The western linguistic boundary of Poland extends through the German provinces of Silesia and Posen. Here a gradual replacement of the language by German since the 16th century is noticeable. At that time the Oder constituted the dividing line. As late as 1790 the population of Breslau was largely Polish. To-day over 75% of the inhabitants of the city and of neighboring towns and villages are Germans. The district north and south constitutes in fact an area of linguistic reclamation. The westernmost extension of Polish occurs in Posen at the base of the provincial projection into Brandenburg. Around Bomst the percentage of Polish inhabitants is as high as 75%. The line extends northwards through Bentschen to Birnbaum, after which it assumes a northeasterly direction. In spite of this western extension, however, the area of Polish speech within German boundaries is broken in numerous places by German enclaves of varying size.⁴⁶

In Western Prussia, the Poles form linguistic islands in the German mass and attain Baltic shores, where they occupy the entire western coast of the Gulf of Danzig. From Oliva and Danzig the line extends to Dirschau (Tezew) and crosses the Vistula about 6 miles below this city. It then strikes east to Altmark, whence it turns southwards towards Marienwerder (Kwidzyn) and Graudenz (Grudziadz). Proceeding due east from here the boundary passes through Eylau, Osterode, the southern territory of the Masurian lakes and on into Russian territory until Suwalki is reached. The eastern frontier begins at this point and is prolonged southwards, according to Slav authorities, through Augustow, Bielostock, Surash, Bielsk, Sarnaki and Krasnostaw.⁴⁷

The struggle for predominance between Poles and Germans along Poland's western boundary is fully nine centuries old. In the 6th century Slavonic tribes had become widely distributed between the Oder and Elbe in the course of westerly expansions

⁴⁵ J. Zemmrich, Deutsche und Slaven in den österreichischen Sudetenländern, Deut. Erde, 2, 1903, pp. 1-4.

⁴⁶ P. Langhans, Nationalitäten-Karte der Provinz Schlesien, 1:500,000. Sonderkarte No. 1 in Deut. Erde, 1906; *id.* Nationalitäten-Karte der Provinz Ostpreussen, 1:500,000. Sonderkarte No. 1 in Deut. Erde, 1907.

⁴⁷ Niederle, *loc. cit.*, p. 73, but cf. H. Praesent, Russisch Polen, etc. Petermanns Mitt., Vol. 60, December, 1914, p. 257.

which corresponded to south and west migrations of Teutonic peoples.⁴⁸ The beginning of the present millennium witnessed the inception of a slow and powerful Germanic drive directed towards the east. Repeated German aggressions brought about the earliest union of all Polish tribes into one nation at the beginning of the 11th century. It proved, however, of little avail before the fighting prowess of the knights of the Teutonic Order who, by the first half of the 13th century, had succeeded in adding all Wend territory to Teutonic dominions. This early and northern phase of the "Drang nach Osten" brought the Germans to the coast of the Gulf of Finland. Their advance was rendered possible in part by the presence of Tatar hordes menacing southern Poland. Teutonic progress was also facilitated by the condition of defencelessness which characterizes an open plain. Between the Oder and the Vistula the slightly undulating lowland is continuous and devoid of barriers to communication which the interposition of uplifted or uninhabitable stretches of territory might have provided.

Polish history has been affected both favorably and adversely by this lack of natural bulwarks. The one-time extension of Polish sovereignty to the coasts of the Baltic and Black Seas or to within 50 miles of Berlin and the central plateau of Russia was a result of easy travel in a plain. This advantage was more than offset by the evident facility with which alien races were able to swarm back into the vast featureless expanse forming Polish territory. The very dismemberment of the country is in part the result of the inability of the Poles to resort to the protection of a natural fortress, where a stand against oppressing foes might have been made.

Poland's easterly expansion, with its prolonged and finally disastrous conflict with Russia, began after the battle of Grunwald in 1410. Although the Poles then inflicted a decisive defeat on the German knights, the western provinces they had lost could not be regained. In this eastern field the basin of the Dnieper merged without abrupt transition into that of the Vistula, just as the basin of the Oder on the west had formed the western continuation of the Baltic plain. Four centuries of struggle with Russia ensued until the Muscovite Empire absorbed the greatest portion of Poland.

The German element is slowly spreading eastward throughout the eastern provinces of Prussia which once formed part of the Kingdom of Poland. The emigration of Poles to central and western Germany partly accounts for the German gain. From the larger cities of eastern Germany, and more especially from Posen, Brom-

⁴⁸ A. C. Haddon, *The Wanderings of Peoples*, University Press, Cambridge, 1912, p. 48.

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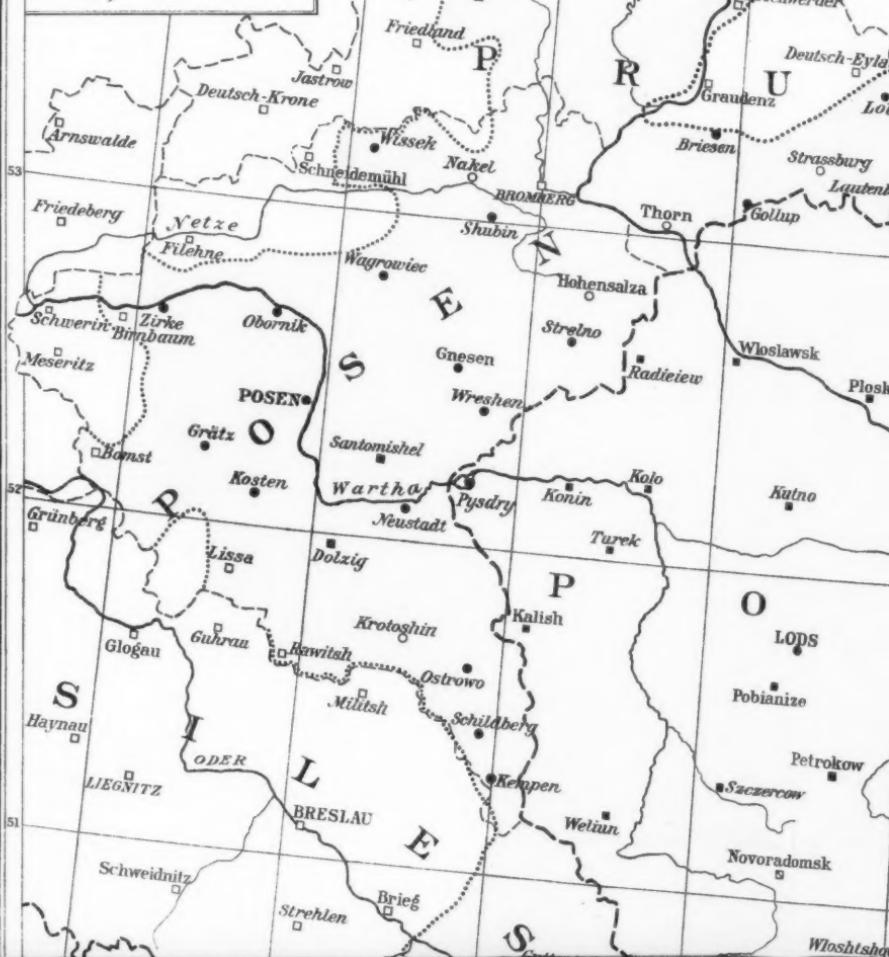
Population:

- over 75% Poles
- " 50% "
- " 75% Germans
- " 50% "

54 data unavailable

LIDS over 100.000 inhab.

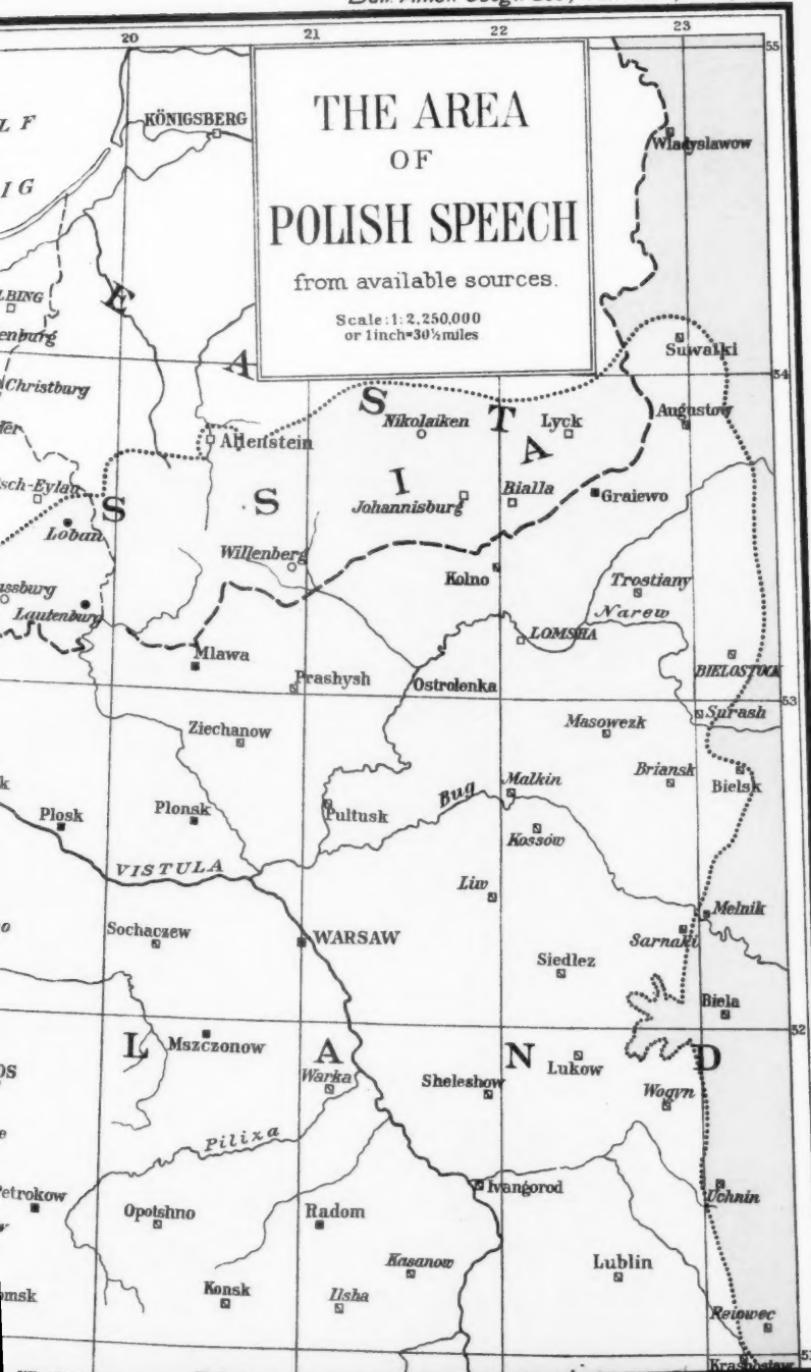
ELBLING from 50.000 to 100.000.

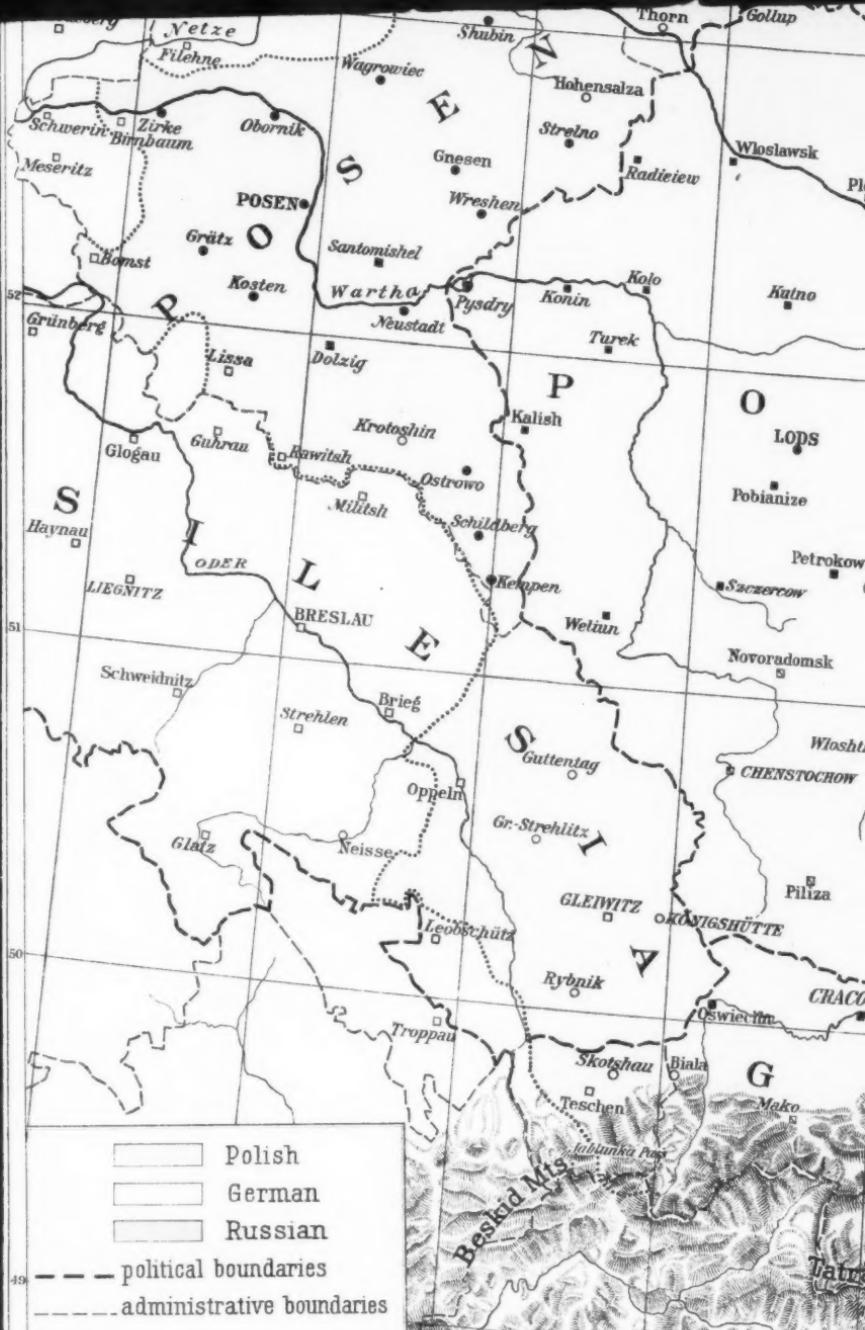
Mlawa } less than 50.000
Dolzig } according to size.

THE AREA OF POLISH SPEECH

from available sources.

Scale: 1: 2,250,000
or 1 inch=30½ miles



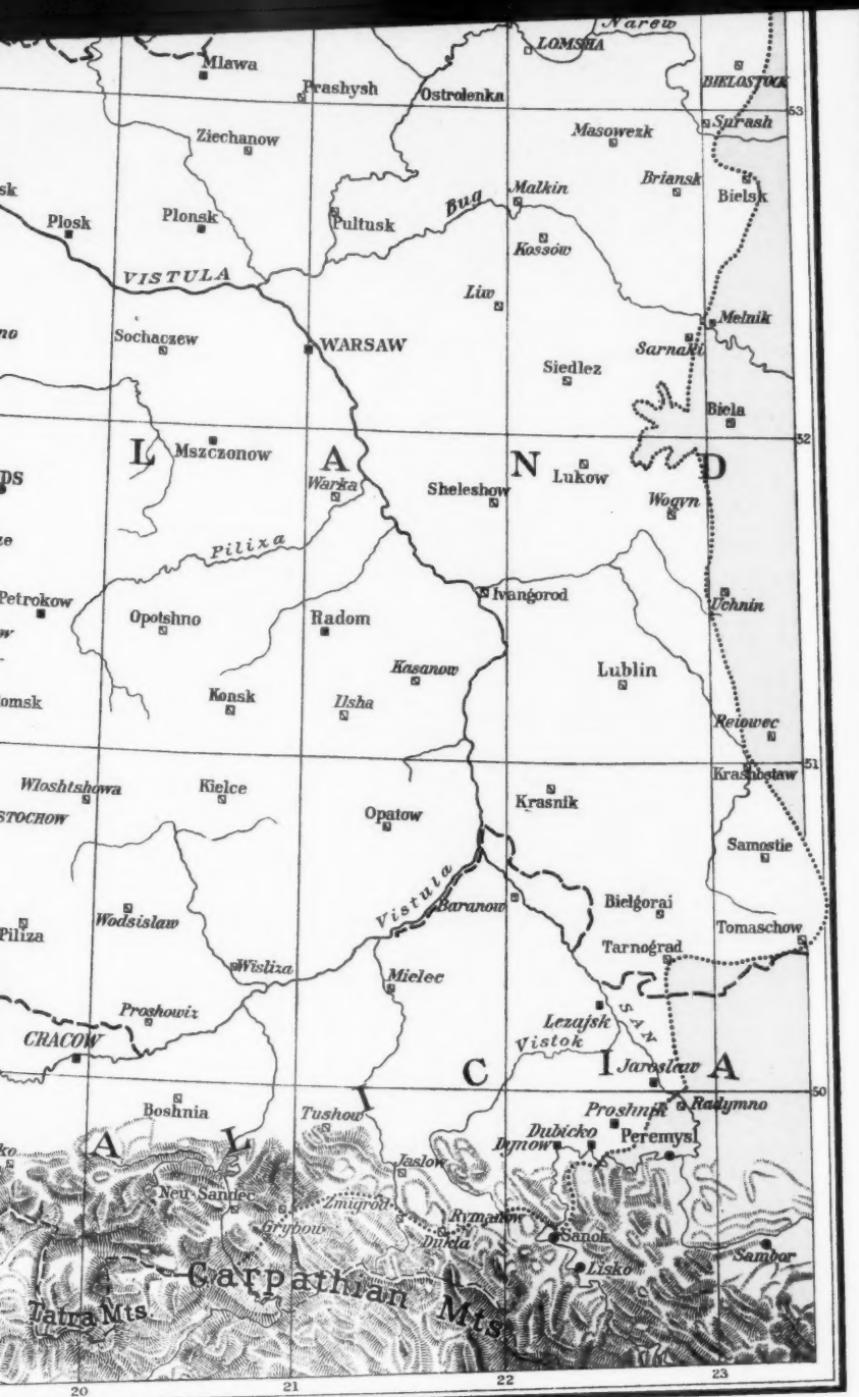


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berg, Gnesen and Danzig, steady flows of emigrants continually wend their way towards the industrial centers of the west, where they find higher wages and generally improved economic conditions. The German government favors this expatriation of its Slav subjects. None of the vexations to which the Poles are subjected by government officials in their native plains are tolerated in the Rhine provinces of the Empire. The result is that notable colonies of Poles have sprung up in the vicinity of industrial centers like Düsseldorf or Arnsberg, in the Münster district and the Rhine provinces. From a racial standpoint, these Poles are practically indistinguishable from the Nordic type of Teuton. Their presence in Rhenish Prussia and Westphalia is no menace to German unity. They are so easily assimilated that the second generation, speaking German alone, forgets its antecedents and becomes submerged in the mass of the native population. Slav settlements are particularly numerous and dense along the Rhine-Herne canal between Duisburg and Dortmund.⁴⁹ The heavy preponderance of Poles in certain administrative divisions of eastern Germany has, nevertheless, been unimpaired by the Polish emigration. Their percentage in the "circles" (Kreise) of Odolanow, Koscian, Ostrzeszow, Posen, Pszczynsk, Olesia and Skwierzyn still exceeds 80% of the total population. In the province of Posen the German-speaking inhabitants still are in the minority.

The Poles scattered in the eastern section of Germany constitute the largest foreign speaking element in the empire's population. Their number is estimated at 3,450,000 by Niederle. German census returns for 1900 give 3,086,489. It must be noted here that the percentage of Jews in German Poland is high, particularly in the urban areas, and that the practice of census takers is to classify them with the German or Polish population according to their vernacular. In Russia the last available census (1897) figures reveal the existence of 1,267,194 Jews⁵⁰ disseminated in the Polish provinces. This represents 13.48% of the population of Russian Poland. Here, as elsewhere, they are rarely engaged in agricultural pursuits, but show tendency to invade prosperous towns and cities.⁵¹

⁴⁹ K. Closterhalfen, Die Polen in Niederrheinisch-Westfälisch Industriebezirk 1905. 1:200,000. Pl. 16 in Deut. Erde, Vol. X, 1911.

⁵⁰ N. Troitsky, Premier Recensement général de la population de l'Empire de la Russie 1897. Vols. I and II, Petrograd, 1905.

⁵¹ The Jews cluster especially in the eastern governments of Warsaw, Lomza and Siedlce where their percentage varies between 15.6 and 16.4. This ratio is lower in the southern and western administrative divisions. In Kalisz it reaches only 7.2% and is reduced to 6.3% in Petrokow. In the cities the Jews constitute on an average slightly over a third of the population, although here again they are more numerous in the east. Cf. D. Aitoff, Peuples et Langues de la Russie. Ann. de Géogr., XV, Mai 1909, pp. 9-25.

In addition to drastic educational measures compelling study of their language, the Germans have resorted to wholesale buying of Polish estates in the sections of the kingdom of Poland which fell to the lot of Prussia when the country was partitioned. A colonization law (*Ansiedelungsgesetz*), decreed on April 26, 1886, placed large funds at the disposal of the German government for the purchase of land owned by Poles and the establishment of colonies of German settlers.⁵² The measure was artificial and proved valueless against economic conditions prevailing in the regions affected. A decrease in the percentage of the Polish population of the estates acquired by purchase was rarely brought about. The new settlers could rarely compete with the natives. The most tangible result consisted of a mere substitution of German for Polish ownership. The mass of laborers and dependents on most of the large estates remained Poles, as they had been prior to the transaction. The breach between Poles and Germans was widened in part by the change of masters. Nevertheless, although returns corresponding to the sum of effort and money expended were not obtained, the measure has contributed to the advance of Teutonism in north-eastern Europe.⁵³

From the east pressure corresponding to Teutonic battering, although exerted with less intensity, is applied by Russian endeavor to create national homogeneity. Of all the different members of the widespread Slavic race the Poles and Russians are the most closely related by speech. But the affinity ends here. The formidable barrier of religious differences hampers fusion of the two nationalities. Caught between the Slavic hammer of Russian orthodoxy and the anvil of Teutonic reformation, the Poles have remained staunch Catholics. Creed in this case has played a considerable part in the preservation of national spirit.

The problem of delimiting Polish national boundaries is complicated on the east and west by the absence of prominent surface features. The lines of linguistic parting cannot be emphasized and are apt to be unstable. This circumstance detracts from their political value.

⁵² A law passed in 1908 authorizes the state to acquire land in the administrative circles in which German interests require development of colonization. B. Auerbach, *La Germanisation de la Pologne Prussienne : La loi d'expropriation*, Rev. Polit. & Parlem., LVII, July, 1908, pp. 109-125.

⁵³ P. Langhans, *Nationalitätenkarte der Provinz Schlesien* 1:500,000, Deut. Er., 1906, Sonderkarte 1; P. Langhans, *Nationalitätenkarte der Provinz Ostpreussen* 1:500,000, Deut. Er., 1907, Sonderkarte 1; *Die Provinzen Posen und Westpreussen unter besonderer Berücksichtigung der Ansiedlungsgüter und Ansiedlung, Staatsdomänen und Staatsforsten nach dem Stande von 1 Januar, 1911*, Deut. Erde, X, Taf. 1, 1911.

10. THE AREAS OF CZECH AND SLOVAKIAN SPEECH

The Czechs, who with the Moravians constitute Slavdom's European vanguard, occupy the mountain-girt plateau of Bohemia in the very heart of Europe. Here the steady advance of Teutons has prevented expansion of these Slavs along the valleys providing them with lines of easy communication with the rest of the continent. Czechs and Moravians thus found themselves bottled up inside the mountainous rim of their land by the Germans of Germany and of Austria.

The German ring surrounding Bohemia is composed of sections representing various types of the Teutonic family. The southwestern element represents the Bavarian settlers from which it is descended. Farmers and woodsmen were introduced into the Böhmerwald as an inevitable phase of the exploitation of the mountainous area by religious communities of the 13th century. The end of the Thirty Years' War was marked by a new influx of Germans needed to repopulate the sorely devastated Bohemian districts. The Bavarian element, however, never reached the foot of the eastern slopes. Modern Czech resistance to its spread toward the plateau persists unflinchingly.

The Erzgebirge uplift is a German ethnographic conquest. For centuries its mineral wealth has attracted artisans from Franconia, Thuringia and Saxony. The mountain slopes resound to-day to the sound of the dialects of these ancient countries. The Saxon element prevails particularly among the inhabitants of the Elbe valley.

Farther east, descendants of natives of Lusatia and Silesia still use the vernacular of their ancestors in the upland formed by the Iser and Riesen ranges. The valleys of these mountains yield a steady stream of German-speaking inhabitants who wend their way towards the industrial towns of the southern plain. The German workingman's competition with his Czech fellow-laborer is keen, however, in this district and has not been marked by notable advance of the Teutonic idiom.

Linguistically the Czechs and Moravians form a unit hemmed in by Germans on all sides except the east, where they abut against their Slovak kinsmen. Community of national aspirations is generally ascribed to these three Slavic groups, in which the Czech is the leading element. The union has been fostered by the lack of a literary language among Moravians with the consequent adoption

of Czech forms of style in writing. The numerical inferiority of the Slovaks⁵⁴ found strength in this alliance.

The Czech linguistic area presents homogeneity of composition which is seldom encountered in other parts of Austria-Hungary. Intermingling of Slav and Teuton elements has been slight in this advanced strip of Slavdom. Overlap of German occurs in banded stretches generally parallel to the political divide. It is particularly noticeable in the eastern angle formed by the junction of the Böhmerwald and Erzgebirge, where it almost attains the town of Pilsen.⁵⁵ Beyond in a northerly direction the volcanic area characterized by thermal springs lies within the German line. Reichenberg, the strenuous center of Teutonism, maintains easterly and westerly prongs of German in the Iser-Riesen uplifts and the Elbe valley, respectively. The German of Silesia spreads into Moravia along the Zwittau-Olmütz-Neu Titschen line.

A short stretch of the southern linguistic area coincides with the political frontier in the neighborhood of Taus, but the balance of the southern Böhmerwald overlooking Bohemian levels is German in speech from its crests to the zone in which widening of the valleys becomes established. The disappearance of this moutainous chain in southern Moravia coincides with a southerly extension of Czech in the valley of the March. Contact with Slovak dialects begins in the Beskid area.

Celts, Teutons and Slavs have occupied in turn the Bohemian lozenge. The appellation of Czechs first appears in the 6th century. National consolidation begins with the country's conversion to Christianity three hundred years later and is maintained with varying fortunes until 1620. Bohemian political freedom suffered annihilation in that year on the battlefield of the White Mountain. After this defeat the land and its inhabitants lapsed into a state of historical lethargy. Half a century ago Czech was almost extinct. Fortunately, the high cultural attainment of some modern Czechs succeeded in rousing their countrymen to a sense of national feeling. In particular, the fire of Czech patriotism has been kept alive by literary activity.

Successful attempts on the part of Hungarians to assimilate the Slovaks has caused these mountaineers to turn to their Czech kinsmen for assistance in the preservation of race and tradition. Merg-

⁵⁴ Official Austrian figures estimate the number of Slovaks at slightly over 2,000,000. Slavic authorities generally give higher figures.

⁵⁵ J. Zemníček, Deutschen und Slawen in den österreichischen Südenlandern, Deut. Erde, II, 1903, pp. 1-4.

ing of national aspirations has been facilitated by close linguistic affinity. A Czecho-Slovak body consisting of 8,410,998 individuals⁵⁶ thus came into being within the Dual Monarchy in order to maintain resistance against German and Hungarian encroachments.

The Slovaks are mountain dwellers who have but slightly fraternized with Czechs and Moravians, notwithstanding close racial and linguistic affinity. The course of centuries failed to change their customs or the mode of life led in the western Carpathians. The Hungarian plain unfolded itself below their rocky habitation without tempting them to forsake the seclusion of their native valleys. Their language holds its own as far east as the Laborec valley. Junction with Polish is effected in the Tatra.

11. THE AREA OF HUNGARIAN SPEECH

The presence in Europe of Hungarians, a race bearing strong linguistic and physical affinity to Turki tribesmen, is perhaps best explained by the prolific harvests yielded by the broad valleys of the Danube and Theiss. Huns, Avars, Hunagars and Magyars, one and all Asiatics wandering into Europe successively, were enticed into abandonment of nomadism by the fertility of the boundless Alföld. Western influences took solid root among these descendants of eastern ancestors after their conversion to Catholicism and the adoption of the Latin alphabet. So strongly did they become permeated by the spirit of occidental civilization that the menace of absorption by the Turks—their own kinsmen—was rendered abortive whenever the Sultan's hordes made successful advances towards Vienna. At the same time, fusion with the Germans was prevented by the oriental origin of the race. The foundation of a separate European nation was thus laid in the Hungarian plains.

The linguistic boundary between Hungarian and German is found in the eastern extremity of the Austrian Alps.⁵⁷ The southern side of the Danube valley between Pressburg and Raab is German. Magyar spreads, however, to the north to meet the Slovak area. The line then crosses the upper valleys of the Raab and attains the Drave, which forms the linguistic boundary between Croatian and Hungarian. East of the Theiss contact with the Rumanian of Transylvania begins in the vicinity of Arad on the Maros river and extends northward in an irregular line hugging the western outlines of the Transylvania Alps and attaining the sources of the

⁵⁶ Census returns for 1910. New Inter. Encyc., Dodd, Mead & Co., New York, 1914.

⁵⁷ P. Hunfalvy, *Die Ungern oder Magyaren*, pp. 104-120. Prochaska, Vienna, 1881.

Theiss. In the northeastern valley of this river Hungarian and Ruthenian language areas become contiguous.

The area of Magyar speech thus defined lacks homogeneity in its western section lying west of the Danube where important enclaves of Germans are solidly entrenched. The central portion of the monotonous expanse unfolding itself between the Danube and the Theiss, on the other hand, is characterized by uniformity of the Hungarian population it supports. Enclaves exist again all along the eastern border of this area.

A minor group of Hungarians have settled on the eastern edge of the Transylvania mountains. They live surrounded by Rumanians on all sides except on the west, where a lone outpost of Saxons brings Teutonic customs and speech to the east. The name of Szekler, meaning frontier guardsmen, applied to this body of Magyars, is indicative of their origin. Their presence on the heights overlooking the Rumanian plain bespeaks the solicitude of Hungarian sovereigns to control a site on which the natural bulwark dominating their plains had been raised. These Magyars represent at present the landed gentry of Transylvania.

This Hungarian colony was in full development at the end of the 13th century. Its soldiers distinguished themselves during the period of war with the Turks. Prestige acquired on battlefield strengthened the separate and semi-independent existence of the community. The region occupied by these Hungarians is situated along the easternmost border of the Austro-Hungarian Empire. The towns of Schässburg and Maros Vasarhely lie on its western border. But the area of Rumanian speech situated between the land of the Szekler and the main Hungarian district is studded with numerous colonies of Magyars, thereby rendering delimitation of a linguistic boundary in the region almost impossible.

The Saxon colony adjoining the Szekler area on the west is also a relic of medieval strategic necessities. In spite of the name by which this German settlement is designated, its original members appear to have been recruited from different sections of western European regions occupied by Teutons.⁵⁸ Colonization had already been started when King Gesa II of Hungary gave it a fresh impulse in the middle of the 12th century by inducing peasants of the middle Rhine and Moselle valleys to forsake servitude in

⁵⁸ F. Teutsch, *Die Art der Ansiedelung der Siebenbürger Sachsen*, Fors. z. deut. Land u. Volksk., Vol. 9, pp. 1-22, 1896. Cf. also O. Wittstock, *Volkstümliches der Siebenbürger Sachsen* in the same volume.

their native villages in return for land ownership in Transylvania.⁵⁹

To promote the efficiency of the soldier colonists as frontier guardsmen an unusual degree of political latitude was accorded them. In time their deputies sat in the Hungarian diet on terms of equality with representatives of the nobility. The exigencies of prolonged warfare with the Tatar populations attempting to force entrance into the Hungarian plains determined selection of strategical sites as nuclei of original settlements. These facts are responsible for the survival of the Teutonic groups in the midst of Rumanians and Hungarians. To-day the so-called Saxon area does not constitute a single group, but consists of separate agglomerations clustered in the vicinity of the passes and defiles which their ancestors were called upon to defend. The upper valley of the Oltu and its mountain affluents in the rectangle enclosed between the town of Hermannstadt, Fogaras, Mediasch and Schässburg contain at present the bulk of this Austrian colony of German ancestry.

12. THE AREA OF RUMANIAN SPEECH

The Germans and Hungarians who founded settlements on the Transylvanian plateau were unable to impose their language on the inhabitants of the mountainous region. Rumanian, representing the easternmost expansion of Latin speech, is in use to-day on the greatest portion of this highland,⁶⁰ as well as in the fertile valleys and plains surrounding it between the Dniester and the Danube. A portion of Hungary and the Russian province of Bessarabia is therefore included in this linguistic unit outside of the kingdom of Rumania.⁶¹ Beyond the limits of this continuous area the only important colony of Rumanians is found around Metsovo in Greece, where, in the recesses of the Pindus mountains and surrounded by the Greeks, Albanians and Bulgarians of the plains, almost half a million Rumanians⁶² have managed to maintain the predominant Latin character of their language.⁶³

⁵⁹ Luxemburg and the regions comprised between Treves, Düsseldorf and Aix-la-Chapelle furnished many German colonists.

⁶⁰ N. Mazere, Harta etnografica a Transilvanei 1:340,000, Inst. Geogr. al Armatiei, Iasi, 1909.

⁶¹ G. Weigand, Linguistischer Atlas des Dacoromanischen Sprachgebietes, Barth, Leipzig, 1909.

⁶² Their number is given at 750,000 by G. Murgoci and P. Papahagi in "Turcia cu privire specială asupra Macedoniei," Bucarest, 1911. Greek computations, in contrast, rarely exceed the 100,000 figure.

⁶³ The total number of Rumanians in the Balkan peninsula is estimated at about 10,300,000 individuals, distributed as follows: Rumania, 5,489,396 or 92.5 per cent. of the population; Russia, 1,121,669, of which 920,919 are in Bessarabia; Austria-Hungary, 3,224,147, of which 2,949,032 are in Transylvania; Greece, 373,520; Serbia, 90,000.

The survival of Latin in an eastern land and in a form which presents closer analogies with the language of the Roman period than with any of its western derivatives had its origin in the Roman conquest of Dacia in the first decade of the second century. Occupation of the land by important bodies of legionaries and a host of civil administrators, their intermarriage with the natives, the advantages conferred by Roman citizenship, all combined to force Latin into current use. When in 275 Aurelian recalled Roman troops from the eastern provinces of the empire, the vernacular of Rome had taken such solid root in Dacia that its extirpation had become an impossibility.

This abandonment of the region by the Romans is invoked for political reasons by the Magyar rulers of Transylvania in order to deny the autochthonous character of Rumanian natives of this Hungarian province. Rumanian historians, however, have been able to demonstrate the untenability of this assumption.⁶⁴ Clues offered by geography also tend to validate Rumanian claims.

From the valley of the Dniester to the basin of the Theiss the steppes of southern Russia spread in unvarying uniformity, save where the tableland of the Transylvanian Alps breaks their continuity. The entire region was the Dacia colonized by the Romans.⁶⁵ Unity of life in this home of Rumanian nationality has been unaffected by the sharp physical diversity afforded by the enclosure of mountain and plain within the same linguistic boundary. The thoroughness with which Rumanians have adapted themselves to the peculiarities of their land is evinced by the combination of the twin occupations of herder and husbandman followed by Moldavians and Wallachians. Cattle and flocks are led every summer to the rich grazing lands of the elevated Transylvanian valleys. In winter man and beast seek the pastures of the Danubian steppes and prairies. Rumanians thus maintain mountain and plain residences, which they occupy alternately in the year.⁶⁶ These seasonal migrations account for the intimacy between highlanders and lowlanders, besides affording adequate explanation of the peopling of the region by a single nationality.⁶⁷

There was a time, however, when Rumanian nationality became

⁶⁴ A. D. Xenopol, *Histoire des Roumains*, Leroux, Paris, 1896.

⁶⁵ W. R. Shepherd, *Historical Atlas*, Holt, New York, 1911, pp. 34, 35, 39.

⁶⁶ Typical examples of seasonal migration are found in Switzerland, where conditions prevailing in the higher and lower valleys of the Alps have induced the inhabitants to shift their residence with the seasons.

⁶⁷ A similar nomadism is observable among the Rumanians of the Pindus Mountains; v. *The Nomads of the Balkans: An account of life and customs among the Vlachs of Northern Pindus*. By A. J. B. Wace and M. S. Thompson, Methuen, London, 1914.

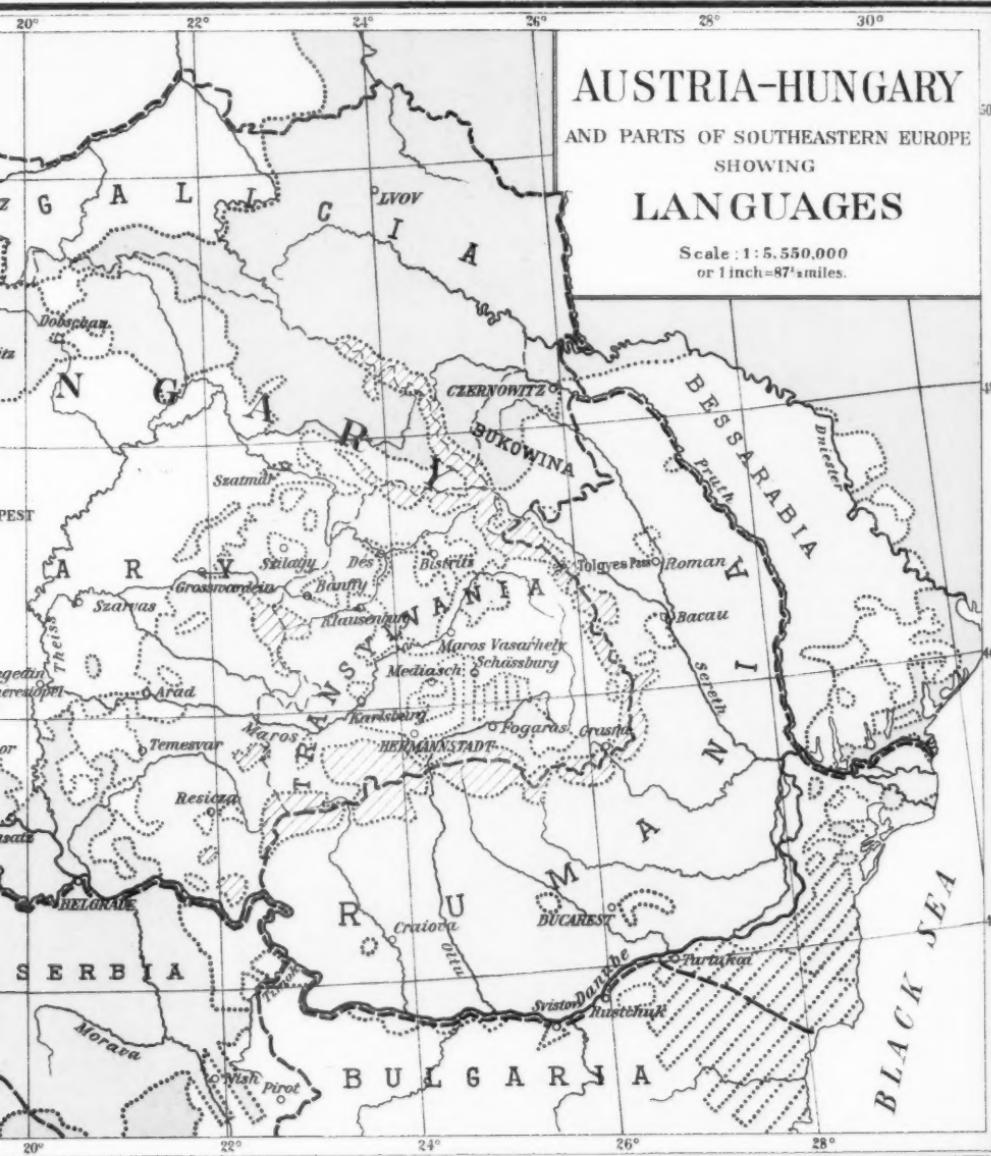
Legend

□ Italian	□ Polish
□ Rumanian	□ Czech & Moravian
□ German	□ Slovakian
□ Hungarian	□ Slovene
□ Turkish & Tatar	□ Serbian & Croatian
□ Russian & Ruthenian	□ Bulgarian
□ Uninhabited Areas	
— National boundaries	
--- provincial "	



AUSTRIA-HUNGARY
AND PARTS OF SOUTHEASTERN EUROPE
SHOWING
LANGUAGES

Scale : 1:5,550,000
or 1 inch = 87 $\frac{1}{2}$ miles.



entirely confined to the mountain zone. The invasions which followed the retirement of the Romans had driven Rumanians to the shelter of the Transylvanian ranges. Perched on this natural fortress, they beheld the irruption of Slavs and Tartars in the broad valleys which they had once held in undisputed sway. Only after the flow of southeastern migrations had abated did they venture to reoccupy the plains and resume their agricultural pursuits and seasonal wanderings.

The outstanding fact in these historical vicissitudes is that the mountain saved the Latin character of Rumanian speech. Had the Romanized Dacians been unable to find refuge in the Transylvanian Alps there is no doubt that they would have succumbed to Slavic or Tatar absorption. As it is, the life of Rumanians is strongly impregnated with eastern influences. Oddly enough, its Christianity was derived from Byzantium instead of from Rome, and were it not for a veritable renaissance of Latinism about 1860 its affinity with the Slavic world would have been far stronger in the present century.

13. THE AREA OF SLOVENE SPEECH

Of the two groups of southern Slavs subjected to Austro-Hungarian rule the Slovenes are numerically inferior.⁶⁸ Settled on the calcareous plateaus of Carniola, they cluster around Laibach and attain the area of German speech, on the north, along the Drave between Marburg and Klagenfurt.⁶⁹ Eastward they march with Hungarians and the Serbo-Croat group of southern Slavs. Their southern linguistic boundary also coincides with the latter's. Around Gottschee, however, a zone of German intervenes between Slovene and Croatian dialects. Practically the entire eastern coast of the Gulf of Triest lies in the area of Slovene speech. The group thereby acquires the advantage of direct access to the sea, a fact of no mean importance among the causes that contribute to its survival to the present day in spite of being surrounded by Germans, Hungarians, Croats and Italians.

The Slovenes may be considered as laggards of the Slavic migrations that followed Avar invasions. They would probably have occupied the fertile plains of the Hungarian "Mesopotamia" had they not been driven to their elevated home by the pressure of Magyar and Turkish advances. Confinement in the upland pre-

⁶⁸ 1,252,940, Census of 1910.

⁶⁹ P. Samassa, Deutsche und Windische in Süddösterreich. Deut. Erde, II, 1903, pp. 39-41, which cf. with Niederle's delimitation in *La Race Slave*, pp. 139-140.

vented fusion with the successive occupants of the eastern plains which unfolded themselves below their mountain habitations. Racial distinctiveness characterized by language no less than by highly developed attachment to tradition resulted from this state of seclusion.

14. THE AREA OF SERBIAN SPEECH

South of the Hungarian and Slovene linguistic zones the Austro-Hungarian domain comprises a portion of the area of Serbian speech. The language predominates from the Adriatic coast to the Drave and Morava rivers, as well as up to the section of the Danube comprised between its points of confluence with these two rivers.⁷⁰ Serbian, in fact, extends slightly east of the Morava valley towards the Balkan slopes lying north of the Timok river, where Rumanian prevails as the language of the upland.⁷¹ To the south contact with Albanian is obtained.

The area of Serbian speech thus delimited includes the independent kingdoms of Montenegro and Serbia. Within the territory of the Dual Monarchy it is spoken in the provinces of Croatia, Slavonia, Bosnia, Herzegovina and Dalmatia. The language is, therefore, essentially that of the region of uplift which connects the Alps and the Balkans or which intervenes between the Hungarian plain and the Adriatic.

Union between the inhabitants of this linguistic area is somewhat hampered by the division of Serbians into three religious groups. The westernmost Serbs, who are also known as Croats, adhere to the Roman Catholic faith in common with all their kinsmen, the western Slavs. Followers of this group are rarely met east of the 19th meridian. A Mohammedan body consisting of descendants of Serbs who had embraced Islam after the Turkish conquest radiates around Sarajevo as a center. The bulk of Serbians belong, however, to the Greek orthodox church. Cultural analogies between the Mohammedan and orthodox groups are numerous. Both use the Russian alphabet, whereas the Croats have adopted Latin letters in their written language.

The Serbian group made its appearance in the Balkan peninsula at the time of the general westerly advance of Slavs in the 5th and

⁷⁰ Scattered Serbian settlements are also found between the Danube and Theiss valleys as far north as Maria-Theresiopol, and farther south at Zambor and Neusatz. Serbian is the language of the entire district of the confluence of the Theiss and Danube.

⁷¹ Serbian authorities usually extend the zone of their vernacular to points farther east. Cf., J. Cvijic, Die Ethnographische Abgrenzung der Völker auf der Balkanhalbinsel. Petermanns Mitt., 59, I, March, 1913, pp. 118-118.

6th centuries. A northwestern contingent, wandering along the river valleys leading to the eastern Alpine foreland, settled in the regions now known as Croatia and Slavonia. Here the sea and inland watercourses provided natural communication with western Europe. Evolution of this northwestern body of Serbians into the Croatians of our day was facilitated by the infiltration of western ideas. But the great body of Serbians occupying the mountainous area immediately to the south had their foreign intercourse necessarily confined to eastern avenues of communication. They therefore became permeated with an eastern civilization in which Byzantine strains can be easily detected. In spite of these cultural divergences, the linguistic differentiation of the Croat from Serbian element has been slight.

To-day the political aspirations of this compact mass of Serbians are centered around the independent kingdom of Serbia, which is regarded as the nucleus around which a greater Serbia comprising all the Serbian-speaking inhabitants of the Balkan peninsula will grow. This Serbo-Croatian element is estimated to comprise at least 10,300,000 individuals.⁷²

By its situation, the Serbian linguistic area and the rugged land over which it spreads afford a political and physical link whereby connection between problems pertaining respectively to western Europe and the Balkan peninsula is established. The process of nation-forging undertaken by Serbian-speaking inhabitants of south-eastern Europe induces a southerly gravitation of Croatians and Bosnians. In opposition to this tendency, artificial forces are exerted at Vienna in order to prevent detachment of the Serbian element in the Dual Monarchy.

15. THE CASE OF MACEDONIAN

Within the Balkan peninsula linguistic groupings now conform to a large extent with the political divisions which ended the wars of 1912-1913. Greater distance in time will undoubtedly afford an increasingly satisfactory perspective of the results which followed this attempt to totally eliminate the Turk from mastery over this portion of the European continent. Racial sifting followed close on territorial readjustments. Turks from all parts of the former Turkish provinces transferred their lands to Christian residents and emigrated to Asia Minor. Special arrangements for this exodus were provided by the Turkish government. Greeks settled in

⁷² J. Erdeljanović. *Broj Srba i Khrvata*, Davidović, Belgrad, 1911.

the newly acquired Bulgarian and Serbian domain similarly sought new homes within the boundaries of the Hellenic kingdom. A heavy flow of Bulgarian emigrants is at present directed to Bulgaria from Bulgarian-speaking territory allotted to Serbia.⁷³

Pressing need of further boundary revision on the basis of language is still felt in the Balkan peninsula. Fear of a resumption of hostilities in this part of Europe is now due principally to the moot case of the nationality of the Slavs of Macedonia. Serbs and Bulgars claim them alike as their own. In reality the Macedonians constitute a transition people between the two. The land they occupy is surrounded by a mountainous bulwark which assumes crescentic shape as it spreads along the Balkan ranges, and the mountains of Albania and the Pindus. For centuries this Macedonian plain has constituted the cockpit of a struggle waged for linguistic supremacy on the part of Bulgarians and Serbs. The land had formed part of the domain of each of the two countries in the heyday of their national life. To this fact the present duality of claim must be ascribed in part.

The language of the Macedonians is likewise transitional between Serbian and Bulgarian. Its affinity with the latter, however, is greater. It is, in fact, sufficiently pronounced to have generally led to its inclusion with Bulgarian. Travelers in the land of the Macedonian Slavs know that a knowledge of Bulgarian will obviate difficulties due to ignorance of the country's vernaculars. Serbian, however, is not as readily intelligible to the natives.

These relations have not illogically weighted the consensus of authority on the Bulgarian side. The result is that compilers of linguistic or ethnographic maps have generally abstained from differentiating the Macedonian from the Bulgarian area.⁷⁴ The impossibility for Bulgarians to regard the terms of the Treaty of Bucarest as final are, therefore, obvious. Extension of the Rumanian boundary to the Turtukai-Black Sea line was also an encroachment on soil where Bulgarian was the predominant language.⁷⁵

In its westernmost area the delimitation of a Bulgarian linguis-

⁷³ Such migrations generally follow boundary revisions. The crossing of Alsatiens into French territory from the year 1870 on has been mentioned in its place above. A large number of Danes likewise abandoned their home in Schleswig-Holstein in 1865 and wandered into Denmark.

⁷⁴ D. M. Brancoff, *La Macédoine et sa population Chrétienne*, Plon, Paris, 1905. The Serbian viewpoint is resumed by J. Cvijić in "Ethnographie de la Macédoine," *Ann. de Géogr.*, XV, 1906, pp. 115-133, and 249-266.

⁷⁵ It is estimated that 1,198,000 Bulgarians are still under foreign rule in the Balkans as a result of the treaty of Bucarest. Of these 286,000 live in Rumania, 315,000 in Greece and 507,000 in Serbia. Cf. R. A. Tsanoff, *Jour. of Race Develop.*, January, 1915, p. 251.

PART OF EUROPE SHOWING LANGUAGES

having political significance.

based on sheet N°12 c (Sept 1911) Debes' Handatlas and other sources.

Scale : 1:9,000,000 or 1 inch = 142 miles.

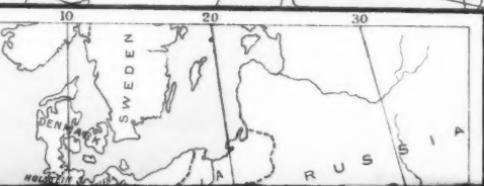
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Albanian	German	Serbo-Croatian
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Swedish	Polish	Finnish
Norwegian	Wend	Hungarian
Danish	Lettish & Lithuanian	Turkish & Tatar

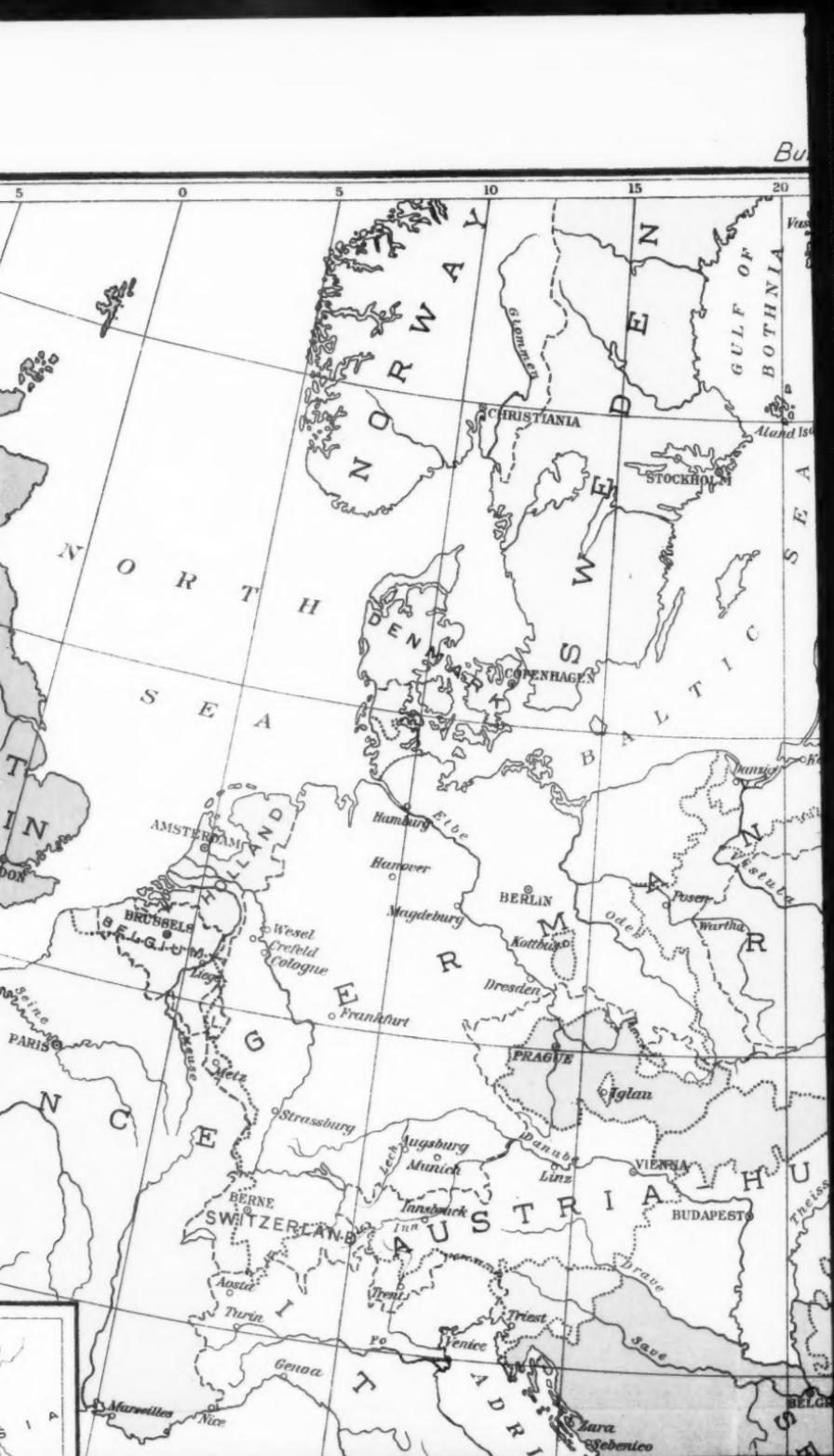
----- political boundaries linguistic boundaries



EUROPE
in 1815.

----- political boundaries
Scale: 1:45,000,000
or 1 inch = 710 miles.



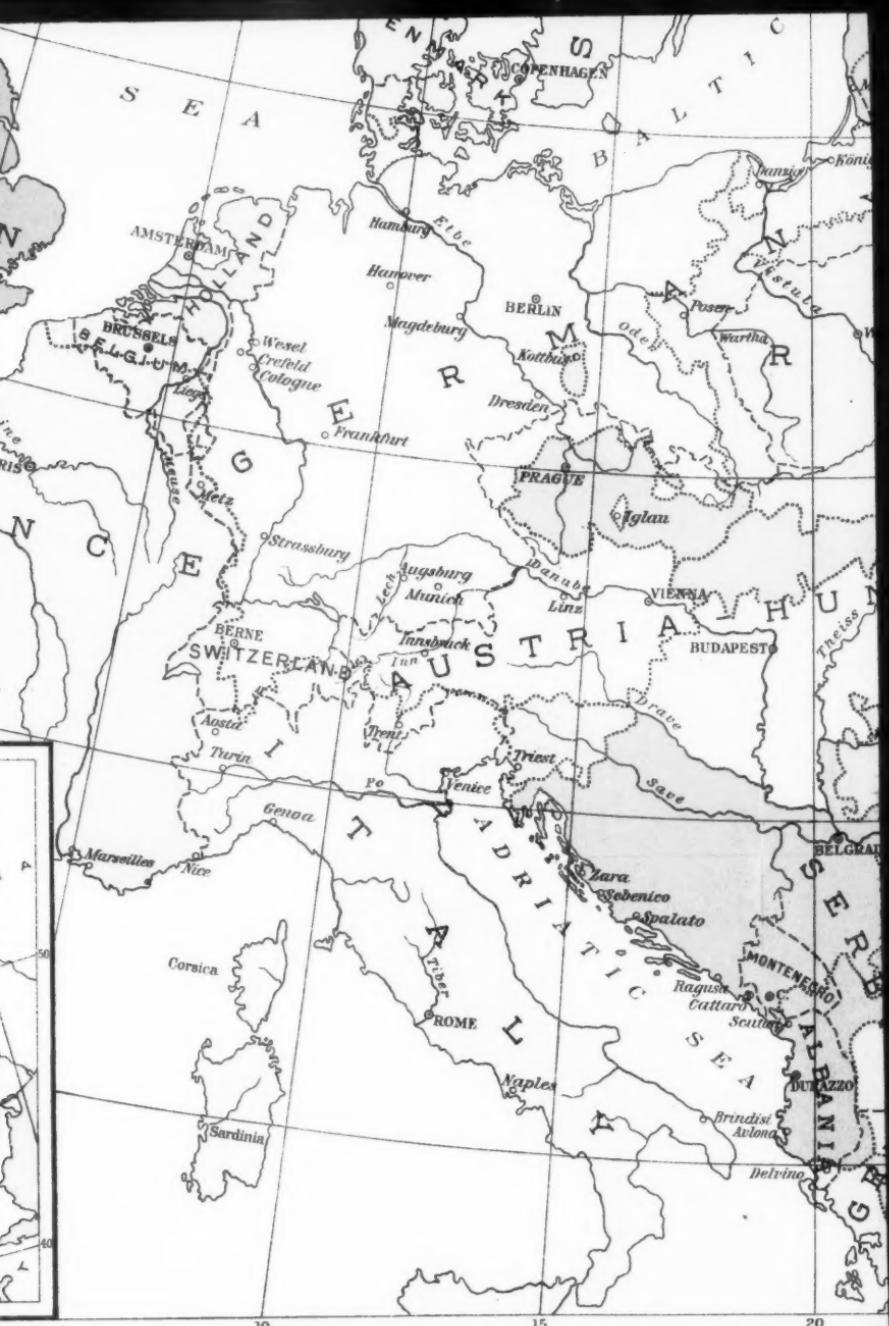


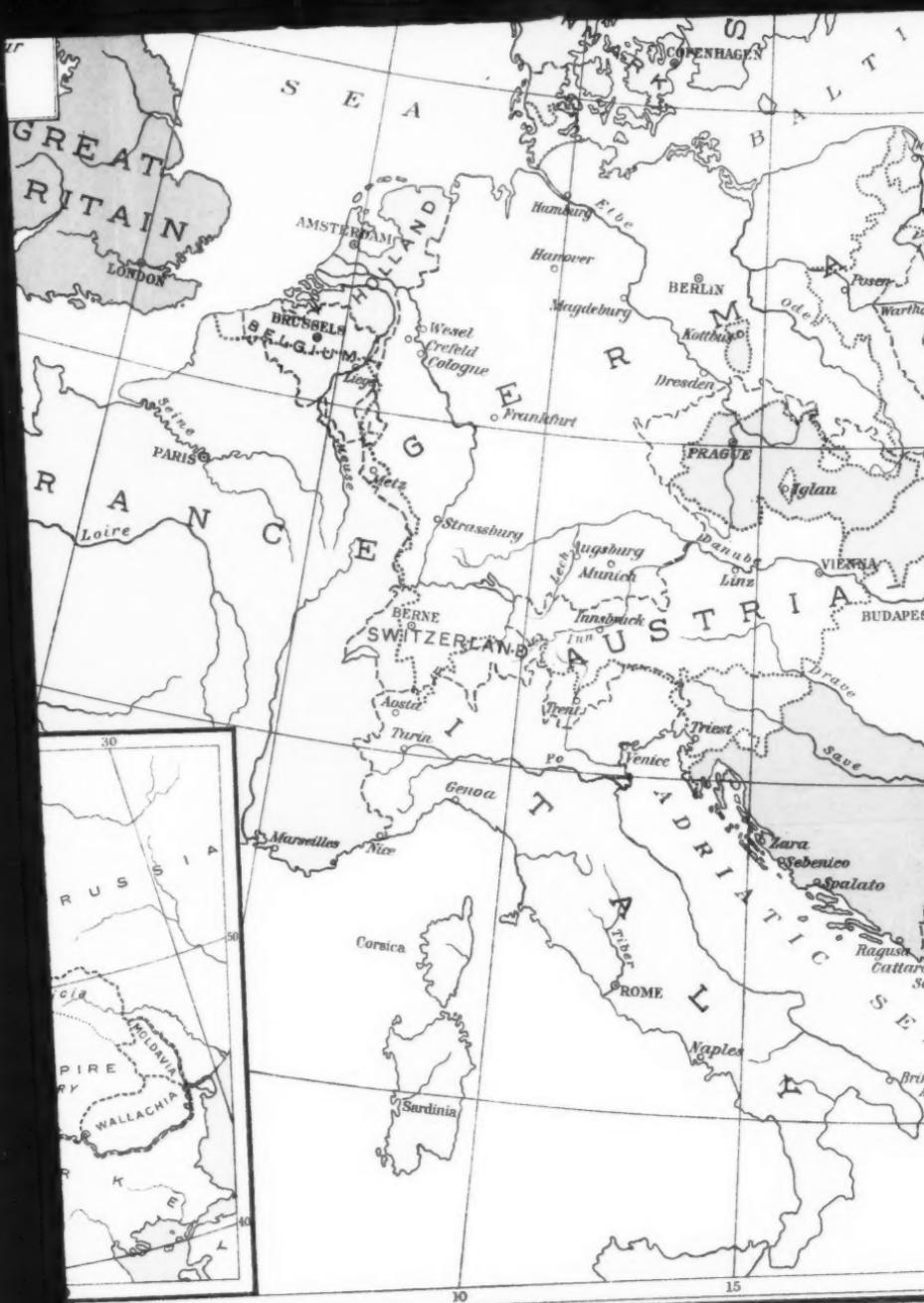




Danish Lettish & Lithuanian Turkish & Tatar
----- political boundaries linguistic boundaries







XUM



tic boundary is greatly hampered by the relatively large Serbian-speaking element on the north and a corresponding mass of Greeks on the south. Reliable statistics are still unavailable. The region in which determination of Bulgarian or Serbian linguistic predominance assumes its most complicated phase is found in the quadrangle constituted by Pirot-Nish-Vranja-Prisrend. Here the language of the Slavic natives departs equally from the Bulgarian and Serbian, between which it varies. This region, however, lies north of Macedonia proper. At the same time, there appears to be little room to doubt that the area of Bulgarian speech extends to the zone of the eastern Albanian dialects and that it attains the Gulf of Salonica. But the seafaring population of the Ægean coast is largely Greek except in the sections within Bulgarian boundaries which are now destitute of Greek fishermen.

16. THE AREA OF ALBANIAN SPEECH

Outside of Macedonia a Balkan zone in which political and linguistic boundaries fail to coincide existed until recently in southern Albania. The frontier of this principality with Greece had been extended into a region in which Greek was undoubtedly spoken by the majority of the inhabitants.⁷⁶ The Hellenic government, taking advantage of disturbances in Albania and the European war of 1914, despatched troops in the territory claimed by its citizens. As a result of this invasion, the Albanian area of Greek speech is at this writing under Greek military occupation.⁷⁷

The inhabitants of Albania are utterly devoid of national feeling. The formation of this independent state was a purely political move undertaken by Austrian statesmen to prevent expansion of Serbia to the Adriatic. Within the boundaries determined by the Ambassadorial conference held in London in 1913, strife and dissensions prevail to-day as intensely as during the Turkish régime. Natives of the northern sections of the country speak Serbian dialects and are inclined to favor union with Serbia or Montenegro rather than independence. Malissori tribesmen fought side by side with Montenegrin troops in the fall of 1912, while the Albanians of Ipek gave assistance to Turkish regulars. The inhabitants of the valley of the upper Morava sent supplies to Serbian troops against which the chieftains of central Albania led their men. The purest type of Albanian found in the vicinity of Elbassan, Koritzia and

⁷⁶ R. Hüber, *Carte Statistique des Cultes Chrétiens*. 1:600 000. Baader & Gross, Cairo, 1910.

⁷⁷ L. Büchner, *Die neue griechisch-albanische Grenze in Nordepirus*. *Petermanns Mitt.*, LXI, 1915, February, p. 68.

Aylona⁷⁸ is practically submerged in a sea of Greeks. Under these circumstances, partition of the country between Greece and Serbia might not be incompatible with native aspirations. Departure from linguistic differentiation in this case would probably be attended by political stability which could not be provided in any other manner.

17. CONCLUSIONS

Certain inferences engage attention in this study of linguistic areas. Inspection of the map of Europe prepared for this article suggests strikingly that zones of linguistic contact were inevitably destined by their very location to become meeting-places for men speaking different languages. They correspond to the areas of circulation defined by Ratzel.⁷⁹ The confusion of languages on their site is in almost every instance the result of human intercourse determined by economic advantages. In Belgium after the Norman conquest the burghers of Flanders were able to draw on English markets for the wool which they converted into the cloth that gave their country fame in the fairs of Picardy and Champagne.⁸⁰ We have here a typical example of Ratzel's "Stapelländer" or "transit regions." In a cross direction the traffic of the Rhine ran at the end of the 12th century from Cologne to Bruges along the divide between French and Flemish. Lorraine, inviting access from east and west, is known to historians as a Gallo-Germanic market place of considerable importance.⁸¹ In our own time the river trade between Holland and Germany along the Rhine has caused expansion of Dutch into German territory as far as Wesel and Crefeld. The intruding language yields, however, to German everywhere.⁸² Prevalence of French in parts of Switzerland is generally ascribed to travel through certain Alpine passes.⁸³ The penetration of German in the Trentino has already been explained. In Austria the entire valley of the Danube has provided continental trade with one of its most important avenues. I have called attention in a former article to the Balkan peninsula as an intercontinental highway.⁸⁴ In a word, language always followed in the wake of trade and Babel-like confusion prevailed along channels wherein men and their marketable commodities flowed.

⁷⁸ G. Gravier, *L'Albanie et ses limites*. Rev. de Paris, January 1, 1913, pp. 200-224.

⁷⁹ F. Ratzel, *Politische Geographie*, 2nd. ed. Oldenbourg, Munich, 1903. Cf. chap. XVI "Der Verkehr als Raumbewältiger," pp. 447-534.

⁸⁰ R. Blanchard, *La Flandre*, Colin, Paris, 1906.

⁸¹ J. Vidal de la Blache, *Étude sur la Vallée Lorraine de la Meuse*, Colin, Paris, 1908, pp. 165-180.

⁸² Cf. inset on pp. 63-64, Andree's *Handatlas*, 6th ed., 1915.

⁸³ J. Brunhes, *La Géogr. Humaine*, Alcan, Paris, 1912, pp. 598-599.

⁸⁴ The Balkan Peninsula, Bull. Amer. Geogr. Soc., Vol. 45, No. 8, 1913.

The history of Europe during the 19th century shows clearly that modern reconstruction of nationalities is based on language. Practically all the wars of this period are the outcome of three great constructive movements which led to the unification of Germany and of Italy as well as to the disentanglement of Balkan nationalities. These were outward and visible signs of the progress of democratic ideals. The congress of Vienna failed to provide Europe with political stability because popular claims were ignored during the deliberations. At present inhabitants of linguistic areas under alien rule are clamoring for the right to govern themselves. The carrying out of plebiscites under international supervision can be relied upon to satisfy their aspirations and serve as a guide to frontier rearrangements.

All told, the growing coincidence of linguistic and political boundaries must be regarded as a normal development. It is a form of order evolved out of the chaos characterizing the origin of human institutions. The delimitation of international frontiers is as necessary as the determination of administrative boundaries or city lines. Human organization requires it and there is no reason why it should not be undertaken with a fair sense of the wishes and the feelings of all affected.

REMARKABLE DISCOVERIES IN BOLIVIA

Seldom have the pages of any geographical magazine contained a more remarkable account than that set forth in the March number of the *Geographical Journal* (London), in which there is announced the discovery of forest tribes in South America, estimated to number 100,000 souls, that have never before seen a white man. The report is by Major P. H. Fawcett, who has already published several accounts of former journeys. Two of these have been noted in the *Bulletin*.¹ The first part of the article deals with the explorations of 1913 in the Caupolicán region of eastern Bolivia where the chief subject of study was the location of the headwaters of the Madidi River, which was at last determined, together with details of various minor affluents of the Beni and the Tuiche. The party found that reports of the wild Indians (Guarayos) have been exaggerated as to numbers. The Madidi and its tributaries now have only five small tribes of not a dozen each, owing to the devastations of the rubber industry.

In 1914 explorations were carried on in a region whose location is not indicated in the article. Says Major Fawcett: "Over certain details I must for the present draw a veil (lifted, however, for the confidential archives of the

¹ Survey Work on the Frontier between Bolivia and Brazil. *Bulletin*, Vol. 41, 1909, pp. 228-229; Exploratory Work in Bolivia. *Bulletin*, Vol. 42, 1910, pp. 609-610.

R. G. S.), because I think there is some probability of the scientific societies combining to prosecute investigations after the war, when, if I or members of the party survive, some very necessary aid may be lent to such a purpose."

The results of the later exploration concerns a very large area of forest country heretofore unentered by any civilized man. It is exceptionally difficult to reach on account of a wide border belt of low swampy forest. After three weeks' journey through dense forest, excessively difficult to penetrate, the party reached higher ground and encountered at last the communal dwellings of the very considerable population. The people live in "malocas," which are communal dwellings, each measuring about a hundred feet in diameter by seventy feet in height, and conical in form. Each of the twenty or more families living in a maloca has its own fire, and each has a platform on which is stored the family share of the annual harvest. The first tribe encountered contains about 3,000 souls, and about them live three other tribes numbering some 5,000. All four tribes are at war with each other and not a single one had ever before seen a white man. They are sufficiently advanced to distinguish the difference between stars and planets. Except in one or two words their language resembles nothing heretofore known. The tribes are anthropophagous, and are in a state of perpetual hostility. There is a fascinating account of the life of the tribes that were visited, their ceremonies, their medicine men, their food, and the life of the forest about them.

Four days' march beyond the territory of the first tribes is another tribe estimated at 2,000 or 3,000 souls. *The full area of this unknown region, says Major Fawcett, must contain at least 100,000 savages.*

We do not know of anything so amazing in the history of recent exploration, not even excepting Colonel Roosevelt's recent discovery of the River of Doubt, as this reputed discovery of tens of thousands of Indians that have not yet been brought into contact with the white race. Major Fawcett is an intrepid explorer, and in this case did what many earlier explorers had hoped but failed to do. He crossed the water courses more or less at right angles and thus put himself in possession of a considerable body of information about remote tribes that occupy the interfluviums. Regarding the river tribes and the need for exploration in the interior spaces, Major Fawcett has this to say:

"An extraordinary number of small tribes are scattered about, on or in reach of the lesser navigable rivers, but almost without exception these are known to and have some sort of friendly intercourse with the rubber pickers. They are, however, being 'discovered' again every year. The very retired forest sanctuary is not open to river expeditions; it is practically impossible for collectors; it has no rubber attractions; and here the large populations of savages still existent hold undisputed possession. I doubt if there is a single really wild savage, ignorant of the white man, within three weeks' journey on foot from a navigable river."

"... Within fifteen leagues of Sta. Cruz, the capital of a province, and close to a main trail, are hostile savages in the stone age, who necessitate half a dozen small garrisons for the protection of the traveler. Within three leagues of the much-navigated upper Mamoré, on the Lake of Cusi, is a tribe of over (reputed) a thousand hostile Indians, quite unapproachable. The right bank of the lower Mamoré, near the confluence of the Itenes, is closed by savages to all but a large force. The river Heath, an international boundary river, successfully defied the entry of boundary commissions. The Parecis Indians near Matto Grosso city may be entered with impunity by the white man, but are deadly enemies of the negro. They, however, are renegades from civilization. The populations of the northern Chaco are little known, and difficult to visit." ISAIAH BOWMAN.

THE CLIMATIC FACTOR: A REVIEW¹

Huntington here presents the results of further studies of questions discussed by him in his "Pulse of Asia" and "Palestine and its Transformation." Those two volumes set forth evidence which gave strong support to the theory that changes of climate of a pulsatory nature have occurred within historic time. "The Climatic Factor" not only strengthens the author's conclusions by adding lines of evidence not before available, but carries the reader forward to a discussion of the probable causes of climatic fluctuations.

The "Introduction" gives an excellent idea of the problem treated, the nature of the evidence investigated, and the conclusions reached. The author describes the climate of Arizona and New Mexico, discusses the topographic features characteristic of so arid a district, and adds a brief statement about its arboreal vegetation.

Turning next to the detailed evidence indicating past changes of climate, the author first describes the alluvial terraces. Two opposing theories of origin, the tectonic and the climatic, are contrasted; and, by an apparently valid line of argument, the fallacy of the tectonic theory is exposed, and the competency of the theory which attributes such terraces to climatic changes is established. Additional physical evidence of probable post-glacial climatic changes is derived from a consideration of the ancient shorelines surrounding the Otero soda lake, and of the relations of older and later gypsum deposits lying upon the desiccated lake bottom. A study of pottery fragments found in the terrace deposits, and of the relation of an ancient canal to the terraces, leads to the conclusion that at least the last of the climatic pulsations which caused important terracing occurred since the human occupation of the district.

The wide distribution and large size of ruins of ancient villages throughout southern Arizona, in localities where there is now insufficient water to support more than a few people, indicates a former moister climate. The ancient inhabitants were agricultural people, and the position of their villages as well as the presence of artificial terracing prove that dry farming was then possible where now it is impossible. Similar observations in southern New Mexico and in Sonora confirm this conclusion for those districts, while in northern New Mexico evidence of successive stages of ancient cultures suggest a pulsatory rise and fall of civilization which may have been related to pulsations of climate.

Studies of fluctuating lake levels near Mexico City, of an excavation near the city in which various relires were found, and of alluvial terraces in the valleys of adjacent mountains and in Oaxaca, afford evidence of climatic changes which is not as convincing as it might be, possibly because here the investigations were not sufficiently extended and thorough. Much more effective is the evidence furnished by the rings of growth of the giant Sequoia of the Pacific Coast. A. E. Douglass contributes an important chapter on the method of estimating past rainfall by rings of growth in trees, and shows that it is possible to recognize by their appearance the rings of specific wet or dry years in different trees distributed over a wide area. Huntington then presents a curve showing variations in rapidity of tree growth from 1300 B.C. to the present time and compares it with the curve of climatic changes previously

¹The Climatic Factor as illustrated in Arid America. By Ellsworth Huntington. With contributions by C. Schuchert, A. E. Douglass, and C. J. Kullmer. v and 341 pp. Maps, illus., index. Carnegie Institution, Washington, D. C., 1914, 11½ x 9½.

prepared for central and western Asia from wholly different data. The substantial agreement of the two curves leads to the conclusion that in similar latitudes of western Asia and western America pulsations of climate were probably synchronous, and of the same character.

The latter part of the work is devoted to a consideration of possible causes of climatic pulsations. Four theories are discussed: Croll's theory of the precession of the equinoxes, the theory based on supposed changes in the amount of carbon dioxide in the atmosphere, the theory based on changes in the location, elevation, and extent of the continents, and the theory of solar changes. The author concludes that while each of the four theories may be valid for certain differences in the climates of past time, none save the solar theory is competent to explain the pulsatory changes which he discusses. Evidence in support of the solar theory is then presented and analyzed. The volume closes with a chapter on the climates of past geologic time by Schuchert, in which there is shown an apparent relation between periods of mountain building and periods of cold climate. This suggests the possibility that both the internal forces of the earth and the external atmosphere may be simultaneously affected by changes in the sun.

Huntington's volume does not solve all of the problems presented by a theory of climatic pulsations. It does not pretend to do so. It does aim to show that the evidence thus far available strongly supports the belief that there have been within historic time climatic changes of a pulsatory nature. In this the author has, in the opinion of the reviewer, been successful.

D. W. JOHNSON.

GEOGRAPHIC NOTES ON THE WAR*

By DOUGLAS W. JOHNSON

The Carpathian Campaign. From the geographical point of view the campaign in the Carpathian mountain region is the most interesting of recent military activities. As the manuscript of these notes must be in the hands of the Editor some weeks before they appear in print, it is only possible to discuss the preliminary stages of an action which may be concluded before the reader sees these lines. However, the geographical significance of the features here discussed is none the less real because of this fact, and it will be profitable for us to consider the general situation in the Carpathians as affected by land forms.

When the Russians made their first advance on Cracow, the Carpathian mountains, with their parallel sandstone ridges guarding the northeastern approaches to the irregular central crest of the main range, afforded an effective protection against a flank attack by the Austrians. No serious attempt was made by the Russians to pour large bodies of troops through the passes to overrun the plain of Hungary. They were content to threaten the plains by raiding parties, or to hold the narrow passes against Austrian attacks. Now, however, the conditions are reversed. It is the Austro-German armies which are fighting a defensive warfare and attempting to hold the passes in the face of large Russian forces engaged in a serious campaign to break through the mountain barrier and invade the Hungarian plain.

In both cases the mountainous topography has been a powerful ally of the force on the defensive. At no time during the earlier operations were the Austrians able to get through the passes in sufficient numbers seriously to threaten the Russian flank. Small bodies of Russians, aided by the difficult

*All of the physiographic features mentioned in this paper are represented on the block diagram facing p. 265 with Professor Johnson's paper in the April *Bulletin*.

nature of the terrain, were able to prevent an Austrian advance into central Galicia. Lately the Russians have found it equally difficult to advance their own armies across the barrier into Hungary. Some conception of the enormous influence of topography upon army movements in this district may be gathered from the fact that although the Russians were painfully making some headway through the mountain ranges prior to the fall of Przemysl, the large reinforcements thrown into their battle line after that event were not sufficient to render possible any great advance.

It is not difficult to understand why the Carpathians present so serious an obstacle to a military offensive. The parallel northwest-southeast trending ridges which constitute the northeastern zone of the middle Carpathians are natural walls of formidable proportions. To cross the intervening valleys and scale such walls in the face of hostile fire involves an attack in numbers greatly superior to that of the defenders, and will usually require the sacrifice of many more men than the defending force will lose. After the Russians had carried several of the ridges, they were held in check for a long time on the Polonina ridge southeast of Cisna, unable to cross the broad valley to the south and capture the main crest of the range between Lupkow and Uzsok passes. Scarcely less difficult for a hostile army is the task of forcing the narrow water gaps, those natural gateways which transverse streams have cut through the parallel ridges. Railroads and good wagon roads are limited in number, and must pass through the water gaps as they converge toward the still smaller number of mountain passes across the main crest. Advancing armies must frequently defile through the gaps, and move in long, slender columns over a single road, exposed for miles to the danger of attack under conditions which would make effective resistance very difficult. The approach to the main passes is thus beset with most serious difficulties for the army which assumes the offensive; and an advance through the passes themselves is impossible until the defending forces have been driven from the adjacent peaks and ridges on either side.

The ease with which a mountain pass may be defended depends on a number of factors, among which we may mention the steepness of the ascent to the pass, the height of the pass above the adjacent country, its breadth and the breadth of the valley or valleys leading up to it, its length from one side of the range to the other, whether or not it is dominated by neighboring peaks and ridges affording easily defended artillery positions, whether or not neighboring roads and subsidiary passes permit parallel columns to cooperate in the attack on the main pass and possibly to turn the position of its defenders by getting in their rear, whether the mountains are forested or open, and the extent to which railroads crossing the passes are built over bridges and through tunnels.

The Dukla Pass is not high above the adjacent country; it is comparatively broad, and the distance between the small towns at either end is not great; a good straight road passes through it on easy grades, but no railroad takes advantage of it. Presumably it was the most easily captured of any of the main passes, and, together with two minor passes on either side, was taken by the Russian troops early in the present campaign.

Twenty miles or more southeast of the Dukla is Lupkow Pass. This is really a double pass, higher than the Dukla and somewhat longer. A railroad connecting Hungary with the fortress of Przemysl crosses the pass by making a big S-shaped double loop, passing through two short tunnels and following high along the side of one mountain ridge for several miles. A good wagon road crosses the main crest by a minor pass three or four miles to the northwest, but must make numerous zig-zags on account of the steepness of the slopes on either side. The country is open or rather thinly forested, and no commanding eminences dominate the pass. It would seem, therefore, that the Lupkow Pass, while much more difficult than the Dukla and probably enough higher to have the snow melt out later in the spring, should not present insuperable obstacles to a vigorous offensive. Damage to two short tunnels could be repaired, and the absence of long bridges would make it difficult for the Austrians to render the railroad useless for any great length of time. After securing the Dukla the Russians naturally turned their principal attention to the Lupkow Pass. Whether or not they secured complete

control here is not clear, although they certainly reached a more southerly point a short distance farther west.

Forty-five miles farther southeast is the Uzsok Pass. Higher even than the Lupkow and with steeper approaches, it opposed such obstacles to the engineer that only recently was a railroad built across it. Part of the elevation is avoided by a mile-long tunnel at the summit, which if destroyed by the Austrians would render the road useless to the Russians for some time. Moreover, numerous bridges or embankments must be used to span the deep ravines crossed by the railroad, thereby affording additional opportunity for a retreating army to render the line unfit for use. The country about the Uzsok Pass is more densely forested than that farther northwest, and snow lies longer in this pass than in those of lower altitude already discussed. A further obstacle to an attack on the Uzsok lies in the fact that the nature of the northeastern approaches compels a hostile army to defile for several miles along a single road commanded by positions from which the defenders could pour a devastating fire upon advancing columns. We can readily understand, therefore, why the Uzsok Pass has so long resisted repeated attempts of the Russians to capture it. Russian successes at the three main passes over the Carpathians seem to have been inversely proportional to the topographic difficulties encountered.

The mountainous topography, so difficult to overcome during an advance, becomes a serious menace to a retreating army. Lines of communication are few in number, and the seizure of one of these by an enemy may compel the retreat of a large section of the battle front. During the retreat large numbers of troops, supply trains, and artillery are suddenly crowded upon the few roads leading back through the narrow valleys and mountain gateways. Confusion is almost inevitable, and if the enemy captures heights dominating the roads, confusion may easily end in disaster. This danger is so real that even a serious threat against one of its lines of communication may cause an army to withdraw its front to a more secure position.

The temptation to strike at the Russian lines of communication east of Cracow, where they branch off from the Cracow-Jaroslaw lowland and follow the transverse valleys to their heads near the crest of the main range, has been especially great because the battle line makes an abrupt bend not far west of the Dukla Pass, running northward a short distance west of and parallel to the communication lines. To defend these lines the Russians took up their main position on the eastern side of the Dunajec-Biala River trench, utilizing the valley itself as a natural moat in front of the artificial trenches. Evidently the Russians counted confidently on their ability to hold this natural barrier against all assaults, else the difficult passes of the mountains would never have been crossed by Russian troops which were absolutely dependent upon lines of communication passing through difficult mountainous country only a short distance east of the Dunajec-Biala line.

The expected has happened. Austro-German armies have delivered a terrific blow against the Russian position on the Dunajec and Biala Rivers. Unexpectedly, the Russians were driven from their advantageous topographic position. The Dunajec-Biala line was forced, and the Russians compelled to withdraw their advanced troops from the Dukla region and make their next stand on the east side of the flat-bottomed Wisloka Valley, the next topographic barrier which offered significant protection against the pursuing Teutons. Defeated here, their next stand was along the trench of the Wislok. East of that the San River itself is the only important obstacle against pursuit. Fortunately for the Russians, the line of the San, with its broad marshy valley floor and its meandering channel and numerous cut-off lakes, is a far more formidable obstacle than the smaller valleys to the west. Here the Russian Armies may make their final stand with the same success that crowned their defensive tactics behind this barrier last October. The Russians in retreating have repeated the earlier tactics of the Austrians, who utilized each of these transverse valleys as a natural line of defense when being driven westward upon Cracow by the first Russian advance. Because of their strategic value these little known rivers are again figuring prominently in the news despatches.

GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

Meeting of the Society. The last meeting of the Society before the summer recess was held at the Engineering Societies' Hall, No. 29 West 39th Street, on Tuesday evening, April 20, at 8.30 o'clock. Vice-President Greenough in the Chair.

Mrs. Chandler Smith of St. George, Staten Island, N. Y., recommended by the Council, was elected a Fellow.

Wilfred Harvey Schoff, A.M., Secretary of the Philadelphia Museums, addressed the Society on "European Boundaries in Modern History" with lantern illustrations.

NORTH AMERICA

Mr. Tittmann leaves the service of the Coast and Geodetic Survey. Mr. O. H. Tittmann, after 48 years of service, has resigned as Superintendent of the Coast and Geodetic Survey, his resignation taking effect on April 15. All the geographers of the country will endorse the sentiment expressed by President Wilson in accepting his resignation:

"Permit me to express my sense of the valuable service you have rendered the Government as head of the important service from which you now withdraw, and to express my hope that you may long enjoy the satisfaction which work done with high ideals and with marked success should properly bring you."

Mr. Tittmann has been elected President of the National Geographic Society to succeed the late Dr. Henry Gannett.

New Superintendent of the Coast and Geodetic Survey. Dr. E. Lester Jones, until April 15 Deputy Commissioner of Fisheries, has been appointed Superintendent of the Coast and Geodetic Survey to succeed Mr. Tittmann. He assumed his new duties on April 16.

Miss Jobe Returning to Mt. Kitchi. Miss Mary L. Jobe has completed her plans for a second expedition to the new ice mountain in the northern Canadian Rockies which she explored and climbed to an altitude of 8,000 feet last summer. An article on her work there last year will appear in the July *Bulletin*. She will again attempt the ascent of this new peak, which she has named Mt. Kitchi (the Big Mountain) and will continue the exploration of the surrounding country. Mt. Kitchi lies about 85 miles N.W. of Mt. Robson. Its melting glaciers form the headwaters of the Big Salmon, the north fork of the Fraser River. Although seen by different parties at various distances, no one except Miss Jobe and her party have been known to set foot on the mountain. This summer she will be accompanied by three climbers from the Canadian Alpine Club and Donald Phillips, the chief guide of the 1914 expedition. The party will leave New York on July 1 and will spend the entire summer in the north country.

The Department of Geography, Chicago University. The Department of Geography is now commodiously housed in Rosenwald Hall, a fine building recently erected through the generosity of Mr. Julius Rosenwald and devoted to the service of the Departments of Geology and Geography in the University. The building includes six class rooms, six laboratories, and offices and work rooms for members of the staff and research students. In

an address at the dedication of the building, on March 16, Dean Rollin D. Salisbury said in part:

"As to the Department of Geography, its subject-matter is just coming to be recognized in this country as appropriate for university consideration, and this is one of the few American universities in which geographic work is prosecuted seriously. Though but a few years old, the Department already is one of the larger of the Science Departments of the institution. By common consent, geography (as distinct from physical geography) is the science which deals with the relations of physical environment to life and its activities. In this sense, geography is a connecting link between geology, physiography, and climatology, on the one hand, and zoölogy, botany, sociology, economics, and history on the other. Its subject-matter is in process of formulation, and the Department has been developed with the idea that the correlation and systematization of existing knowledge in this field is the first step in real progress. Something has been done here in this direction, and work in progress will do much more. The Department will not be satisfied until existing knowledge in many fields now scattered and undefined is brought together, digested, and put into form available for general use."

"Members of the staff are at work on problems of fundamental importance and large significance. One of these is the influence of physical geography on history. Such problems as the conservation of natural resources also fall within the field of the Department. The whole field of world commerce likewise falls within the scope of geography, jointly with that of economics. In these days of keen commercial rivalry between nations, this is a subject which cannot be understood too well. Since we live in the present and are to live in the future, knowledge of present resources and conditions, and of their bearing on the life and activities of the future, is vital to the welfare of mankind. And this makes it important to know as well as we may the whole earth, for more and more its parts are to be dependent on one another. The Department will not be content until it has on its staff men who have first-hand and detailed knowledge of all lands. To-day we have special students of the Americas and of Europe, but not of other continents."

Our Largest Potash Deposits. Mr. Hoyt S. Gale gives in a recent Bulletin of the U. S. Geological Survey* an excellent summary of one of the most interesting drainage systems in the United States. The interest lies partly in the fact that the Searles Basin contains far the largest potash deposits in any part of the country. They are estimated to be sufficient to supply the entire demands of the United States for at least thirty years. During the glacial period the present Owens Lake expanded and overflowed to form a lake in the China Basin; this spilled into the Searles Basin and filled it to a depth of 650 feet, before it in turn overflowed to the Panamint Basin. There another lake with a depth of 930 feet was formed, which in its turn sent a stream into Death Valley. There, however, for reasons not yet understood, no lake traces have yet been found. It is possible that the Panamint also contains potash like the Searles, but if so it is concealed by other deposits. The potash, it should be added, does not occur in solid deposits, but in a dense brine which pervades the saline deposits of the basin floor to a depth of 60 or 70 feet.

The second point of interest in Gale's paper is his conclusion as to the recency of changes of lake level. From a comparison of the present saline constituents of Owens Lake with the salinity of the Owens River, whence most of the water is derived, he concludes that the lake ceased to overflow only about 4,000 years ago. Since that time there has been sufficient change of some sort to reduce the lake's area about 60 per cent., and to lower the level by 200 feet. This reduction has been interrupted at least twice, as is indicated by strands, so that there appear to have been pronounced variations of climate within 4,000 years.

ELLSWORTH HUNTINGTON.

* Salines in the Owens, Searles, and Panamint Basins, Southeastern California. By Hoyt S. Gale. *U. S. Geol. Surv. Bull. 580-L.* (Contributions to Econ. Geol., 1913, Part I-L), pp. 251-323.

Work of the Coast and Geodetic Survey. Mr. J. H. Peters will soon begin work on a line of levels running north from Seattle to the Canada boundary. The purpose is to check the elevations at the western end of the forty-ninth parallel in connection with the United States-Canada boundary survey work. Mr. Peters will later transfer his party to Huntley, Mont., and connect that place with a point on the Great Northern Railway near the Montana-North Dakota boundary. This line will divide a loop of precise levels more than 2,000 miles long into two smaller loops. Both of these lines are along railroads, and motor cars will be used for transportation as during previous seasons.

A line of precise levels along the oblique boundary of Nevada from Reno to Las Vegas will be run during the next few months by Mr. G. D. Cowie. This line, including spurs, is nearly 500 miles long. It passes through a hot desert country, practically unsettled, but as the leveling follows the railroad, the difficulties of the work will be decreased. The party will live in tents, as there are only a few towns and these are far apart. The main object of this line of levels is to supply fundamental elevations for some of the secondary leveling of the U. S. Geological Survey.

Gravity determinations at nearly forty stations have been made since Feb. 1 by two parties under Assistants C. L. Garner and J. D. Powell. These stations are in the eastern and southeastern part of the United States. Until recently the practice has been on gravity work to make star observations to obtain the chronometer rates. In July, 1914, the Superintendent, at the suggestion of Mr. William Bowie, Inspector of Geodesy, had tests made to determine whether or not the noon signal sent out by the Naval Observatory could be used in place of the star observations. It was found to give good results both in Washington and in the field. Only one observer is now needed in a party instead of two and the cost of making gravity determinations has been decreased 50 per cent.

Some Other Field Work. Mr. N. A. Bengtson, Associate of the Nebraska Conservation and Soil Survey, will be engaged this summer in a part of the Big Blue River Valley, Neb. His studies will relate to the distribution and stratigraphy of the Permian in Southern Nebraska and to the completion of a survey begun last year on the physiography, soils and industry of Gage Co., Neb. The latter is a correlation study along a portion of the dissected east front on the loess plains of the state.

The only field work in progress this summer by the Connecticut and Natural History Survey will be an investigation of the water resources of the state carried on in coöperation with the U. S. Geological Survey.

Mr. E. W. Shaw of the U. S. Geological Survey is studying, in May and June, the physiography of the coast of southern Florida and the Keys out to their western extremity, Tortugas. A yacht makes possible visits to many places otherwise difficult of access.

The Work of the United States Weather Bureau, 1913-14. The *Annual Report of the Chief of the Weather Bureau for 1913-14* (issued 1915) outlines the operations of the Bureau during the fiscal year ended June 30, 1914. A new service for reporting daily weather conditions over the principal range region of the West, as affecting live-stock interests, was begun in the spring of 1914. The daily reports are collected by telegraph at Amarillo, Texas, and distributed to the cattle and financial interests in the surrounding country. This service has met with wide approval. The determination of the water content of the snow remaining among the mountains in some of our western states, begun a few years ago in Utah, has been extended into one watershed in Idaho and one in Nevada. It is found that observations of snow-depth obtained by the use of "snow-stakes" permanently placed in areas not easily accessible in winter, give the best information obtainable in regard to the season's water supply from snow-fields at high altitudes. These "snow-stake" records are supplemented by a smaller number of density measurements. More complete observations could be obtained only by very laborious and expensive surveys.

During the year, the first daily weather reports from Spitzbergen were received by telegraph, and wireless reports were also received from two newly established stations in the West Indies. The publication of a daily weather map of the entire northern hemisphere was begun on Jan. 1, 1914, but had to be suspended after the outbreak of the war. Frost forecasts in California and Florida have been improved by new reporting stations in orchards, and report the temperatures to which trees and fruits are actually exposed. Local observers in the fruit districts of the Rogue River and Yakima valleys, and in the Boise Basin, amplify the district frost forecasts, and apply them to restricted localities. A new service is to be established this summer whereby warnings will be issued of meteorological conditions favorable for forest fires in the timbered regions of the West. Preparations have been made to transfer the aerial work to a point in the Middle West, in order to increase the effectiveness of this investigation.

The Weather Bureau cooperated with the Smithsonian Institution in carrying out a series of aérolological observations in connection with the Mts. Wilson and Whitney expedition (*Monthly Weather Review, July, 1914*). Prof. H. H. Kimball has continued his measurements of solar radiation. His observations in connection with the dust effects of the Katmai eruption have already been noted in the *Bulletin*. In general, the radiation received on clear days during the first half of the year exceeds that received on clear days in the second half of the year by about 8 per cent. This is chiefly because of the increased water vapor content of the atmosphere during the latter period. Photometric measurements indicate that about one-fourth of the illumination with the clearest sky at midday is received diffusely from the sky, and about one-fifth of the radiant heat received at noon is from this source. Measurements of nocturnal radiation made at Mt. Weather show that the values decrease as the water vapor content of the atmosphere increases with the advancing summer.

R. DEC. WARD.

Funds for the U. S. Geological Survey. The sundry civil act as passed by the last session of Congress contained appropriations of \$1,355,520 for the United States Geological Survey. The principal items for the fiscal year ending June 30, 1916, are: topographic surveys, \$350,000; geologic surveys, \$350,000; mineral resources of Alaska, \$100,000; mineral resources of the United States, \$75,000; chemical and physical researches, \$40,000; geologic maps of the United States, \$110,000; gaging streams, etc., \$150,000; surveying national forests, \$75,000.

The bill also appropriates \$175,000 for printing and binding Survey reports, and \$1,500,000 for the new Interior Department building, which is to accommodate the Office of the Secretary of the Interior, the Geological Survey, the Reclamation Service, the Land Office, the Indian Office, and the Bureau of Mines. The total cost of the new building has been fixed at \$2,596,000.

Geological Excursions from San Francisco. The Geological Society of America and the Palaeontological Society will hold meetings in San Francisco and vicinity during the convocation week of the American Association for the Advancement of Science on Aug. 3, 4, 5, and 6. In connection with these meetings a number of excursions have been planned under the leadership of local geologists and palaeontologists. Some of them will be of especial interest to geographers, such as the examination of the earthquake rift in Marin County, north of San Francisco, and of the marine terraces near Santa Cruz.

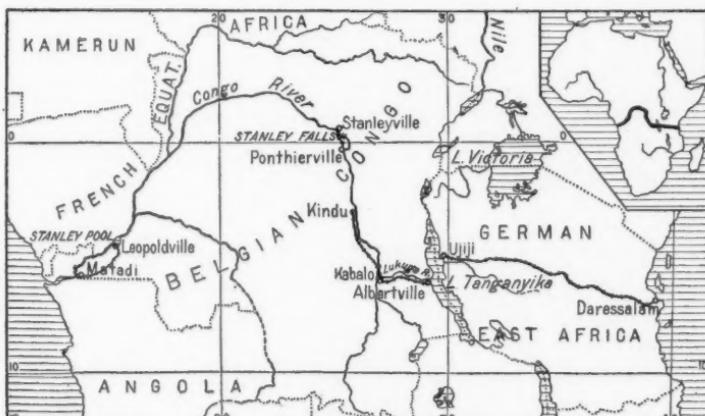
British Columbia. This province is coming more and more into notice as one of the reserves for enormous future development. Years of unhealthful speculation resulted in the financial depression of 1912-14, but the collapse of the boom, according to a *Supplement to Commerce Reports* (British Columbia, No. 23c, pp. 1-12), is "diverting the attention of the people from speculative business to the development of the natural, wealth-producing resources of the province." The following statements are condensed chiefly from this publication:

"The area of British Columbia being 353,416 square miles, it is three and

a half times as large as New York, New Jersey and Pennsylvania together. It is larger than the combined areas of Italy, Switzerland and France. It had a total population in 1911 of 392,000, which is only a little more than that of Newark, N. J. Only a small fraction of the country has yet been turned to account, though it is estimated that the area of tillable land is 240,000,000 acres. Most of this is as yet unavailable for lack of population or transportation and only about one-fifth of the agricultural area now available is yet occupied. Still, the agricultural production in 1913 was valued at \$27,360,000. The metal industry, though only in the early stages of development, has thus far produced over \$400,000,000 in gold, coal, copper, silver, lead, building stone and brick. Millions of acres of pulp-wood area are still unexploited. The lumber resources are enormous and, with two transcontinental lines now tributary to Vancouver and Prince Rupert and the opening of the Panama Canal, the province expects in future to have a large part in supplying lumber to Asia and Europe as well as to America. The shore-line of several thousand miles, with its islands and indentations, affords protected areas of about 25,000 square miles suitable for fishing and fish are obtained in great variety. The year 1914 was the banner year of the fishing industry, the value of the total yield being \$15,000,000. The value of the additions to live stock in 1914 is estimated at \$7,300,000. For a region which is still in the early stages of its development British Columbia is doing well.

AFRICA.

Steam Route Across Africa Completed. Reuter reports that about the middle of March the railroad line from Kabalo on the Congo to Lake Tanganyika, following the course of the Lukuga River, the outlet of Tanganyika, was completed. This event marks a notable fact in the development of steam transportation in Africa. It is the final link in a line of steam com-



Steam Route across Tropical Africa.

munications across Africa from the Atlantic to the Indian Ocean, partly by water and partly by rail. Atlantic steamers ascend the Congo as far as Matadi, eighty-five miles from its mouth, from which point a railroad 260 miles long connects Matadi with Stanley Pool (Leopoldville). This railroad circumvents the long series of rapids where the Congo threshold gradually breaks down to the coastal plain. From Leopoldville the river is navigable

for about 1,000 miles to Stanleyville. Above this point a railroad some seventy-five miles long passes around the series of Stanley Falls to Pontherville. There is good navigation from this station to Kindu, whence a railroad has been extended some 300 miles further south to Kabalo, at the mouth of the Lukuga River. Kabalo, as the Reuter dispatch says, is now connected by rail with Albertville on Lake Tanganyika, which is connected by steamer with the port of Ujiji on the east coast of Lake Tanganyika. The German railroad between the port of Ujiji and Daressalam, the capital of German East Africa, has been in operation for over a year. The railroad from Kabalo to Albertville is an enterprise of the Belgian Congo, formerly the Congo Free State.

Animals from Congo Equatorial Forests. *Nature* (Feb. 25, 1915) reports the arrival at Khartum of Dr. C. Christy, who has been engaged for three years on a zoological mission in the Belgian Congo. He has made very large collections of animals from the Ituri forest and other regions of the Congo. He was fortunate in shooting two Okapi. Only three or four white men have thus far shot Okapis, nearly all the specimens now in Europe and America having been killed by natives. He also secured several specimens of Meinertzhangen's great black forest pig and many of the dwarf Ituri buffalo.

ASIA

The Geology of Northern Afghanistan. A report on this subject in the *Memoirs of the Geological Survey of India* (Vol. 39, Part 1, 97 pp., maps, illus.), is written by H. H. Hayden, Director of the Geological Survey of India. Mr. Hayden says that nearly a quarter of a century ago Mr. C. L. Griesbach spoke of Afghanistan as being "geologically still a *terra incognita*" and this description holds good almost equally at the present day. The little that is known of Afghan geology is due chiefly to Griesbach's work between 1880 and 1888, the scientific results of which were published in *Records of the Geological Survey of India* (Vols. 18, 19, 20 and 25). Nothing has been published since excepting the results of Mr. Hayden's short tour, in the present volume. Mr. Hayden has been able, to some extent, to confirm as well as to amplify Mr. Griesbach's conclusions. He says the country may be regarded as divisible into two stratigraphical provinces, one of which is represented only in eastern Afghanistan, while the other comprises the greater part of the country and embraces most of the northern and western districts. The affinities of the former province are with the Himalayan area, while those of the latter are with western Asia and also to some extent with Europe. The separation of the two provinces seems to have taken place towards the end of the Carboniferous period.

Work of the Chinese Monuments Society. Owing to the destruction and theft of cultural objects during and after the foreign invasion of China in 1900 the Chinese Monuments Society was formed at Peking in 1908. Its object is to secure suppression in China of vandalism by foreigners and the protection of China's antiquities and all cultural objects. The Society at once began agitation against vandalism and has also been engaged in identifying and listing the principal monuments and antiquities. The movement has the support of the American Archeological Institute and the Smithsonian Institution; and in 1914 more than fifty universities, museums and other organizations in our country memorialized President Yuan Shih-K'ai urging the protection and preservation of monuments. Through the Department of State, Washington, the good offices of our diplomatic and consular representatives in China were enlisted. The activities of the Society have thus created among foreign peoples and among the Chinese a lasting interest in the conservation of Chinese monuments. The sum of \$100,000 of the Boxer Indemnity remitted to China by the United States is to be used in the preparation of museum quarters in Peking, where national antiquities will be collected for preservation and study. It is now reasonably assured that the traffic in these cultural objects will be legitimatized by statute and controlled by government. The

Society has members in all parts of the world. It is desired to extend its membership. Any person interested may become a member by sending \$2 gold to Frederick McCormick, Secretary, care of International Bank, Peking.

Population of Jerusalem. The population of Jerusalem has increased in the past few years to 110,000, there being about 14,000 Mohammedans, 16,000 Christians, and 80,000 Jews. Most of the Jews are those who left Russia for fear of political and religious persecution. Many of the Palestine Jews are emigrating to avoid serving in the Turkish army. There are many elderly Jews who come to die in the Holy City. The European colonies consist largely of Jews of various nationalities, the British colony, for instance, having a population of 350, of which 200 are Jews.

AUSTRALASIA AND OCEANIA

The Southern Ocean. *The Geographical Journal* (April, 1915, p. 340) says that correspondence has recently passed between the British Colonial Office and Admiralty and the Governor Generals of the Commonwealth of Australia and the Union of South Africa with reference to naming the ocean which encircles the globe in southern latitudes. The question was referred to the Admiralty, which recommended the name "Southern Ocean" as suitable to be applied to "the ocean bounded on the north by the line joining the southern portions of South America, Africa, Australia and New Zealand and on the south by the Antarctic Continent." The proposal has been formally adopted by the Commonwealth and the Union Governments. It is pointed out that such a division must be recognized as more or less conventional, and ill-suited to the requirements of the student of geomorphology who must take account not merely of the distribution of sea and land but of the general form of the ocean floor. The limits must be elastic according to the point of view momentarily adopted. Thus in studying the Pacific as a physical unit it would be absurd to stop short at a conventional line joining New Zealand to Cape Horn.

Natives of the Fly River, British New Guinea. Sir Rupert Clarke, who, in the summer of last year, led an expedition up the Fly River in British New Guinea, recently arrived in London. In 1890, Sir W. Macgregor reached a point 610 miles from the mouth of the river. Sir Rupert Clarke's expedition went twenty miles further. He also made the first ascent of Mount Donaldson, close to the German boundary. In a communication to the London *Times* of April 10, he reports that the natives, a fine-looking, tall race, were at first inclined to be hostile, but later became friendly. They are divided into communes ranging in numbers from five or ten families to a thousand persons. No one is supposed to die a natural death, which is caused by suggestion through their magic men. After a man's death his relations must get a head so that his spirit may rest in peace. These heads are usually those of the women and children of hostile tribes. They are in constant fear of attack from their enemies, and live on scaffolds raised on high trees. Their bows are exceedingly formidable, beyond the strength of a white man to draw. They protect themselves from arrows by a kind of bamboo cuirass. They wear no other clothing. The height of Mount Donaldson was provisionally fixed at about 2,000 feet. The return journey was effected in safety, without firing a shot, on rafts down the Fly River. Some signs of gold were discovered but not rich enough to make working worth the trouble.

EUROPE

Geography and the War. The *Mitteilungen* of the German and Austrian Alpine Union published five lists up to February 28 of its members who had been killed in the war, the total being 823.

The *Zeitschrift für Vermessungswesen* for February, 1915, reports an additional list of twenty killed, twenty-seven wounded, and three missing of the survey force of the Royal General Commission of Prussia.

Johann Albrecht, Duke of Mecklenburg, President of the German Colonial Society, published in the name of the Society in the *Deutsche Kolonialzeitung* of Feb. 20 a protest to "the whole civilized world" against the war which the United Kingdom and France have carried into the German Colonies of Africa.

At the meeting of the Council of the Royal Geographical Society on Feb. 8 it was resolved that the names of alien enemies resident abroad who are Honorary Members, Honorary Corresponding Members or ordinary Fellows, of the Society, should be removed from the lists of the Society during the continuance of the war.

The fish industry in the North Sea has naturally suffered. Early in August last year the Grimsby trawling fleet was laid up and deep sea fishing was almost suspended; two months later, 500 Grimsby vessels resumed fishing. Exports of both fresh and cured fish, however, fell off almost entirely as Germany usually took more than 90 per cent. of the fresh fish exported from Britain and about half of the pickled herrings. Finally about one-third of the total Grimsby fleet of 600 ships was requisitioned by the government for other purposes. A large number of the best men in the fishing service entered the army and the danger of mines also affected the industry so that for months fish has been very scarce and dear.

The *Koloniale Zeitschrift*, the organ of the Deutsch-Nationaler Kolonialverein, whose regular weekly publication has been suspended since early in the war, has issued its third "Kriegsausgabe," which is devoted to the seizure of the German colonies, a paper criticizing England's colonial policy in Africa as unfavorable to the best development of the natives, and a plea for the encouragement, after the war is over, of German emigration to those parts of the German colonies adapted for white colonization.

Marquis René de Segonzac, well known for his important explorations in Morocco, has been made a Chevalier of the Legion of Honor for military services. The honor was conferred upon him at the head of his regiment of Moroccan tirailleurs.

POLAR

ANTARCTIC

The Nordenskjöld Expedition Postponed. According to a message to the *Morning Post* from its Stockholm correspondent, the projected Anglo-Swedish Antarctic Expedition, under the leadership of Prof. Otto Nordenskjöld, has been postponed until the war has been brought to a conclusion. It will be remembered that the expedition was to sail in August next. (*Nature*, Apr. 15, 1915, p. 180).

ARCTIC

Sending a Ship for the Crocker Land Expedition. The Committee in charge announces that the *George B. Cluett* has been chartered to bring home the Crocker Land party. The *Cluett* is a three-masted auxiliary schooner owned by the Grenfell Association of America and used for carrying hospital and food supplies from St. John's, N. F., to the mission stations along the coast of Labrador. The vessel will leave Battle Harbor or St. Anthony, Labrador, about the first week in July, go directly to Etah to take on board the party, their collections and equipment and will return to New York in September. Captain George Comer, of East Haddam, Conn., has been engaged to serve as ice pilot. He has had many years' experience in the ice fields of Hudson Bay. Mail intended for members of the party should reach the Museum of Natural History, New York City, not later than June 15.

THE WORLD AND PARTS OF IT

Drifted from the Mid-North Atlantic to the Orkneys. Dr. Albert Ernest Jenks, Professor of Anthropology in the University of Minnesota, sends us the following note:

"We sailed from Liverpool for New York on the steamship *St. Paul*, of

the American line, on September 13, 1914. I had contracted a heavy cold shortly before sailing, and the ship's doctor put me to bed with a high temperature for the first three days of the sailing. On going again to the deck, my small boy and I jokingly put my card in the two-ounce bottle in which the doctor had give me some medicine. The bottle was thrown overboard on September 16, when nearly half way to New York, or at about 32° W. Long. and 52° N. Lat. It was picked up by a little boy, David L. Towers, on April 7, 1915, while he was walking along the shore of the Bay of Veantroe on Shapinsay Island of the Orkneys."

The bottle was thrown into the North Atlantic drift of the Gulf Stream, along whose southerly edge lie the Orkney Islands, the main drift passing northeast to and along the coast of Norway.

EDUCATIONAL GEOGRAPHY

GEOGRAPHY IN THE SUMMER SCHOOLS

Continuation of the list printed in the May Bulletin (pp. 370-372)

Nebraska. UNIVERSITY OF NEBRASKA, Lincoln. Miss Nelson will give illustrated lectures on physical geography with laboratory and field work; and on industrial geography with emphasis on the industries of Nebraska.

New York. CHAUTAUQUA SUMMER SCHOOLS, Chautauqua. July 5-Aug. 13. Mr. W. G. Burroughs will lecture on methods of teaching geography in each grade and in rural schools; also on physiography and geology. Discussions and field excursions.

Ohio. DENISON UNIVERSITY, Granville. Miss Bertha Henderson of Chicago University will lecture on geography for grammar grades: Landscape and map drawing, use of stereopticon and laboratory materials, handling field trips, illustrative materials and literature, intensive study of North America as illustrating educational principles; Geography for primary grades: Selection of material adapted to grades 1-4, home geography by excursions and use of local materials, study of regions illustrating the geographic controls of heat, cold, moisture and drought, discussion of methods, literature and illustrative material.

Tennessee. GEORGE PEABODY COLLEGE OF TEACHERS, Nashville. June 17-July 23 and July 24-Aug. 28. Principles of geography (a study of geographic factors), commercial geography and geography of North America by Mr. Harold B. Ward of Mt. Pleasant Normal School, Mich.; Principles of geography with emphasis upon climate and its influence upon life, topography, drainage, soil, etc., by Miss Mary Dopp of the Parker High School, Chicago; influence of geography on American history, by Miss Dopp; commercial and industrial geography of Latin America, by Mr. Osuma.

OBITUARY

PROF. DR. PAUL EHRENREICH. Professor Ehrenreich died on April 14 in the 59th year of his life. He was Professor of Ethnology and Ethnography in the University of Berlin and Director of the Royal Museum of Anthropology. He was one of the leading authorities in his special work, made many field researches relating to primitive peoples in Brazil (especially in the Xingu Basin), in East Asia, and in Mexico and other parts of North America. He was one of the largest recent contributors to the literature of his subject.

GEOGRAPHICAL LITERATURE AND MAPS

(INCLUDING ACCESSIONS TO THE LIBRARY)

BOOK REVIEWS AND NOTICES

(The size of books is given in inches to the nearest half inch)

NORTH AMERICA.

- A Walloon Family in America. Lockwood de Forest and his Forebears, 1500-1848.** By Mrs. Robert W. de Forest. Together with a voyage to Guiana, being the Journal of Jesse de Forest and his Colonists, 1623-1625. Vol. 1: 314 pp. Map, ills. Vol. 2: 391 pp. Ills., index. Houghton Mifflin Co., New York, 1914. 10 x 6½.

Through this entertaining family record there runs modestly a most important thread of geographical information. The De Forests, a branch of the family uses the variant spelling De Freest, came to this country in the colonial plan of the Patroon Van Rensselaer, therefore their original establishment was in part on the upper Hudson River and in part on the island of Manhattan. In following the particular branch of the family which is the theme of this narrative we are introduced to the frontier settlement in what is now Harlem, to the raids of the Indians which it was impossible to resist when so far from civilization, at last to the removal of the family to the vicinity of the fort and the assumption of land on the north side of what is now Stone street midway between Whitehall and Broad streets. From this then central homestead a younger son of the first Isaac De Forest went voyaging through Hell Gate in a rowboat and established himself in a new settlement on the Connecticut shore of Long Island Sound a short distance up the Housatonic River in what is now the town of Stratford.

At this point in the family narrative the geography becomes minute and local; these Connecticut De Forests seem to have lost the exploration fever, they clung close to the roof tree and became substantial citizens, office bearers in the meeting house, minor officials in the township, soldiers in the Revolution. Yet they kept themselves at the fringe of settlement, they were pioneers in the subdivision of the parish and the creation of new townships back in the hills. It was not until the second quarter of the last century that the De Forests returned to New York to take part in the greater affairs of the metropolis.

The first Connecticut De Forest adventured his young hopes in a rowboat, his descendant returned to New York, after two centuries, as a merchant prince directing the voyages of fleets of ships upon the sea. But Mrs. De Forest has proved herself not unmindful of the geography of wider voyaging. Her minute investigation of the family history in the Low Countries led her to the discovery of a little-known manuscript in the British Museum listed as Sloane MS. 179b. This proves to be the highly valuable record of the expedition of a voyage under the leadership of Jesse De Forest to the Amazon and the Guiana coast in 1623 for the purpose of establishing a Walloon colony. This manuscript is here for the first time printed in the original French accompanied by an English translation, and it is illustrated by reproductions in photographic facsimile of the title-page and four of the maps of the manuscript, together with Blaeuw's map of Guiana. This record will prove of great value to students of the Essequibo and adjacent coasts and is well worth detailed geographical collation. In a few particulars it will be necessary to refer to the original manuscript for the deciphering of knotty points of chirography which are here represented by lacunæ, and the identification of the points noted in the journal is by no means complete. It is important that the existence of this print should be noted in the bibliography of the Guianas. WILLIAM CHURCHILL.

SOUTH AMERICA

Reise in Peru und Ecuador ausgeführt 1909 von Wilhelm Sievers.

411 pp. Maps, ills., index. *Wissenschaftl. Veröffentl. der Gesell. für Erdk. zu Leipzig*, Vol. 8. 1914. 9½ x 6½.

A detailed description of observations made on a journey through northern Peru in 1909. The observations relate chiefly to (1) the lithologic and topographic characters of the various Cordilleras and Sierras between southern Ecuador and latitude 11° S. (Cerro de Pasco); (2) the glaciation of the Andean system between these limits; (3) the climate; (4) the distribution of the vegetation with special reference to the limits of the several types; (5) the distribution of useful plants; and (6) trade regions and transportation routes.

There is no better summary of the orogeny of northern Peru than that on the first eleven pages of this book. The detailed descriptions that follow will be a source of precise physiographic data for all time. It is dry reading, but we do not have in our literature a better method for the mere recording of scientific facts. The section on glaciation is the climax of the book. The colored map showing the limits of both existing and earlier ice sheets is in every respect praiseworthy. From it there flow conclusions of the highest importance. It is shown that the marks of glaciation on the eastern border of the Cordillera extend northward almost to the frontier and that the ice everywhere gave rise to mountain lakes of great value as feeders of streams that support irrigation. Between 7° and 8° S., at 10°, and again at 11°, the ice masses were coextensive with ample stretches of the summit plateau, giving rise to the type known as "plateau-glacier," already identified by Benrath (1904) and Hauthal. The map showing the distribution of this type of glacier is immensely instructive, no less in human geography (distribution of towns) than in physiography (distribution of ancient ice masses and glacial lakes).

The troublesome questions of the number of glaciations in South America, their relative effects and the limits of their action are treated in a conservative way. The author does not agree with Hauthal's conclusions (1911) regarding three glacial epochs. Of the existence of two epochs there is no longer reasonable doubt. Nearly equal in interest is the discussion of the limits of both present and past glaciations on the eastern and western borders of the Andes and of the individual ranges. The western slopes, oddly enough, appear to have the lower snow-line. The position of the snow-line is a function of temperature, precipitation, wind, and topography. On the west is a cool oceanic current and subnormal temperatures, hence a lower snow-line. Moreover, though the precipitation is greater on the east, it is partly offset by the warmer winds of the east, the dominant trades. Finally, the slopes fall off steeply on the east and less steeply, or to high plateau levels, on the west. There is need for further analysis. The problem is by no means solved. For, contrariwise, in Bolivia and southern Peru the snow-line is unquestionably canted eastward over the Cordillera as a whole and on the separate sierras. In the horse-latitude belt of northwestern Argentina it is no less true than in the trade-wind belt farther north. The width of the mountain belt is probably also a factor, the narrower zone of northern Peru allowing at least the occasional transmission of marine influences to the crest of the Andes.

The chapters on plant societies and the useful plants are refreshingly clear. There is a simplicity and directness of statement about highly important facts that leave the impression of modesty and of large reserve of power. Here are enormous quantities of the material of geography. There is almost too little attempt to cast into literary form the compact field notes of the author. These considerations apply with equal force to the valuable notes on the ways and means of trade and transportation. It is interesting to note that the highest shepherds' huts are in many places above the lower limits of glaciers, though nowhere are such extreme altitudes reached as the reviewer found in 1911 in southern Peru—17,100 feet, the highest habitations in the world yet reported.

ISAIAH BOWMAN.

AFRICA

Italy in North Africa. An Account of the Tripoli Enterprise. By W. K. McClure. xi and 328 pp. Maps, ills., index. J. C. Winston Com., Philadelphia, 1913. \$2.50. 9 x 6.

A description of the occupation by Italy of Tripoli, and its outlying littoral and hinterland, written by an Englishman and based upon personal investigation on the spot, and upon the inspection of the official military reports treating of the operations of the Italian army. Three topographical sketch-maps of the Italian engineers give a good idea of the region occupied and conquered by Italy. The view adopted is wholly favorable to Italian diplomacy, and military and naval operations. The account of the work done by the Italian air-craft is particularly worthy of note. The absence of a detailed account of the writer's personal experience is as unusual as it is commendable. The relations of Italy to the other great European powers are described and Britons are advised that continual hostile criticism will destroy Italian good-feeling towards England in the future. It is a commendable example of historical writing.

DAVID H. BUEL.

Administration in Tropical Africa. By Capt. C. H. Stigand. viii and 302 pp. Index. Constable & Co., London, 1914. 10s. 6d. 9 x 6.

One of the most suggestive and helpful books yet written in relation to the task of bringing the benefits of good government and civilization to the barbarous tribes of tropical Africa. It is a practical work written by a British official who up to this time has been best known by his books on hunting and game in Africa. As a servant of the British Administration, however, he dealt with very different matters; and he, as well as many others in the same line of service, had to work out his own problems with regard, first, to establishing law and order in his district and then to its material development.

So he tells of the local conditions that affect Tropical Africa, a most illuminating chapter; of the selection of a station site, the available materials for building, the development of agriculture, its products, transportation, native labor, industries, natural products, forestry, administrative work, armed forces, etc.; and he discusses many other topics that have to do with the upbuilding of the great areas which the European powers now possess in barbarous Africa. This is one of the first books written on practical methods of development—methods evolved by actual experience. All who are seriously interested in Tropical Africa should read this book.

With the Tin Gods. [A Woman's Adventures in Northern Nigeria]. By Mrs. Horace Tremlett. x and 308 pp. Ills. John Lane Co., New York, 1915. \$3.50. 9 x 6.

A book worth reading, not because the author knew anything of Africa before her husband took her there, but for the reason that she has keen perceptions and literary gift. Anyone competent to judge will say that she gives vivid and true impressions of what she saw. Her journey was from Lagos to the Niger and into Nigeria as far as the Bauchi Highlands, the tin field that the British are developing. Mrs. Tremlett sketches the life of whites and blacks, describes the effects of their environment upon them, sharply differentiates between the Hausa, the Fula and the common black tribes and all her pen pictures abound with humor and discernment.

ASIA

The Holy Land of the Hindus. With seven letters on religious problems. By the Rev. Robert L. Lacey. 246 pp. Map, ills. R. Scott, London, 1913. 3s. 6d. 8 x 5½.

A reprint in book form of a series of articles previously published in missionary periodicals, showing Baptist Christianity face to face with Hinduism and Buddhism. The "Holy Land" is washed by the waters of the Bay

of Bengal and lies between the 19th and 22d parallels, and the 83d and 87th meridians. It is called Orissa and is a division of Bengal. The book relates to the experiences of a Baptist missionary and his wife in their work of converting the Hindus to the teachings of evangelical Christianity. Hinduism, or the worship of Jagenath [Jagannath], "The Lord of the World," the ninth incarnation of Vishnu, is described as the grossest form of idolatry, marred by shocking indecency, yet embraced by fervent multitudes, who beggar themselves to make contributions of money and property to the priests. Buddhism in Burma is viewed with sympathy, and said to be far different from the centralized hierarchical Buddhism of Tibet.

DAVID H. BUEL.

Indien. Ceylon, Vorderindien, Birma, die Malayische Halbinsel, Siam, Java. Handbuch für Reisende. Von Karl Baedeker. Ixix and 358 pp. Maps, index. K. Baedeker, Leipzig, 1914. Mk. 20. 6½ x 4½.

Those of us who have traveled Europe under Baedeker's skilful guidance have eagerly wished for the same practical helps when our journeys have taken us into the Far East. Here at last is a Baedeker for the most-traveled part of the Orient.

In 74 pages the introduction gives practical advice on travel in India, a working vocabulary in Hindustani, and a treatise on Indian religion, culture, art, and literature. The next 14 pages treat the route from Europe to India. Baedeker's estimate of the importance to the traveler of the various places described is suggested by the number of pages devoted to each. Ceylon has 52, India 186, Burma 28, Malay Peninsula 16, Siam 8, and Java 37.

The book sustains Baedeker usefulness, authority and up-to-dateness. Only rarely can its judgment be questioned, as, for instance, in giving special commendation (double star) to Galle Face Road in Colombo, and not to the view from Tiger Hill, Darjeeling, that embraces one of nature's noblest panoramas, including Mt. Everest, and again in almost ignoring the Malabar coastal region, notwithstanding its rare picturesqueness. Architecture would seem to receive more space than its due. Geographers would like to have the attention of travelers called more to features and problems of their particular interest, especially in a country where the influences of climate, relief and soil on plants and people are so striking. The dozen sketches of tropical vegetation on pp. 17-19 and the accompanying paragraphs are steps in the right direction.

The 56 unusually excellent maps make the book of high value to geographers for the reference library. With them the traveler has no excuse for not knowing exactly where he is from the time he leaves the Mediterranean until he climbs Tengger in Eastern Java.

SUMNER W. CUSHING.

A German Scholar in the East. Travel Scenes and Reflections.

By H. Hackmann. Translated by D. Rommel. xi and 223 pp. Ills. Kegan Paul, Trench, Trübner & Co., Ltd., London, 1914. 9 x 5½.

This English condensation of the "Welt des Ostens" by the Professor of the History of Religions, in the University of Amsterdam, is chiefly valuable for its expert valuation of the present-day status of Oriental religions. Buddhism is considered to have shot its bolt and to be really disintegrating. Profoundly modified by national and racial traits, in Mongolia, Japan, China, and Siam, it has been ousted from its birthplace in India by Hinduism. Taoism is better thought of, with its creed of self-abasement, self-denial, and actual practice of the simple life. Old Japanese Shintoism is regarded as really dead, while the new national Shintoism of Nippon is thought to be vital, although merely secular. The scenes where Confucius was born, lived and died, and their neglect, are described with a sad regret; but while the immense influence of Confucius on China is conceded, no estimate of the present position or future prospects of Confucianism in China is given. It is granted that Japan has adopted, and that China is adopting Western learning, culture, and civilization, minus Christianity. It is allowed that it is well-nigh impossible for Oriental and Occidental to enter into each other's view-point, and a strict and impartial

investigation of facts, as they are, is advocated, as a medium to a better mutual understanding.

DAVID H. BUEL.

Seistan: A Memoir of the History, Topography, Ruins, and People of the Country. By G. P. Tate. Part 4: The People of Seistan. pp. 273-378. Ills., index. Superintendent Government Printing, Calcutta, India, 1912. 12s. 12 x 9½.

The author does not profess to deal with the problems of desiccation. In fact, he is sedulous to avoid entrance upon that theme of great geographical controversy. He pictures husbandmen working their fields under ditch and utilizing every last trickle of the precious water. He presents bucolic nomads following the recession of the waters of the pools as they evaporate under the summer sun, pitching their tents so near the water's edge that they have to build dikes to keep out the waves if the wind should arise. The water is the prime consideration of the Tajik, the Jat, the Gujar and the Ahir peoples of Seistan. Need has made hydraulic engineers, for the life of the community depends on their skill. They are their own instruments of precision in running levels. A man lies on his back and looks over his eyebrows, the point of land which he can see when in this position will give him a flow of water. Without attempting the solution of the question Mr. Tate notes the several arguments which bear upon the identification of the Jats of Seistan with the Gets and Massagetae of classical geography. Students of Aryan philology will note with interest his suggestion of a relation between the name *pago* applied to the Seistani farm holdings and the Latin *pagus* whence we have our pagan.

WILLIAM CHURCHILL.

The Political Development of Japan, 1867-1909. By George E. Uyehara. Series: Studies in Economics and Political Science. xxiv and 296 pp. Index. Constable & Co., London, 1910. 8s. 6d. 9 x 6.

A constitutional history of Japan, written in English by a Japanese, and offered and accepted as a thesis for the degree of Doctor in Science in the Faculty of Economics of the University of London. The Japanese mind is represented as giving to the Mikado in the Japanese world, the position accorded to the Supreme Being in the Christian system. Everything in the Japanese world comes from the Mikado, everything subsists in him, nothing in Japan exists independent of him. He is the sole owner of the country, the author of its religion, law, justice, privilege and honor, the symbol of the Japanese nation. No Japanese sceptic has ever arisen to question this Japanese dogma. It is asserted that this Japanese view-point is the key to the constitutional history of Japan. To it is due the present day Japanese bureaucratic government, built on the Prussian model, an aristocratic oligarchy disguised under the veil of constitutional forms. The attempt of the last twenty-five years to put off Oriental ways, and put on the civilization of the West, sprang from racial pride, which led Japan to chafe at having its customs and its legal treatment of foreigners managed from without, and made it glad to undergo everything to place itself among the great world powers.

DAVID H. BUEL.

AUSTRALASIA AND OCEANIA

The Subanu: Studies of a Sub-Visayan Mountain Folk of Mindanao. 236 pp. Maps, index. Part 1: Ethnographical and Geographical Sketch of Land and People, by Lieut.-Col. John Park Finley, U. S. A.; Part 2: Discussion of the Linguistic Material, by William Churchill; Part 3: Vocabularies. Carnegie Institution, Washington, D. C., 1913.

Col. Finley resided many years at Zamboanga as Governor of the Moro Province of the Philippines. The southern end of the Subanu geographic range comes down to the municipality of Zamboanga, and that town is their chief market. It is also the place where they came into contact with the Spaniards and the Americans.

Col. Finley presents a brief history of the tribe, whose tribal name means

"river dwellers." He discusses the home land, and pictures primitive barter as carried on between the Subanu and Mohammedan peoples when they first came to the coast about 1380. There were 47,164 Subanu in 1912. They are culturally only slowly modified, and, the author says, the chief reason is that they lack curiosity. Very slow Mohammedanization of the pagan Subanu is going on, and in the process one may study how the five extensive Moro, or Mohammedan, tribes were transformed from pagans by a handful of proselyting Arabs. The Subanu are farmers ignorant of economic processes, yet so far successful that for 300 years the hillmen fed not only themselves but also the fierce parasitical coastal Moros, and the Christian Spaniards during the years they were in Zamboanga. Their chief agricultural products are rice, maize, camotes (sweet potatoes), tobacco, and cassava, from which they produce tapioca. Though they do not cultivate sago palms, they gather the food from wild trees. Bananas, papayas, pineapples and a few other fruits are frequently grown for food. The Subanu are chiefly vegetarians, but they resort to food of fish, fowl, wild hog and deer when other food is scarce. They are peace-loving people who build their dwellings in hidden places for safety. There is a unique family independence, and to this fact the author says is due the failure of both Spaniards and Americans to gather the scattered Subanu into towns. The families are polygamous, yet "polyandry is occasionally resorted to where men are too poor to provide the *laxa* (dowry) required to secure a wife"; two men then join in the purchase of one wife. They practice a strict and efficient quarantine against the spread of such infectious diseases as smallpox, cholera, and measles. They are devoutly religious, are animists, and have practiced human sacrifice.

Mr. Churchill's part of the book has two purposes: One, to pass under critical review the validity of the so-called Malayo-Polynesian family of speech, as advocated by Bopp; second, to throw what additional light might be upon the origin and early development of human speech.

On the first point his conclusions are that the study of the Malayan Subanu vocabulary reveals no evidence of the existence of a Malayo-Polynesian speech family. The Malayan language is agglutinative; while the Polynesian is isolating. Each contains words of the other. Mr. Churchill believes he has added another proof of the non-existence of that dual language family. His explanation of the existence of words common to the two peoples is given on page 172, as follows:

Preceding the Christian era the Polynesian peoples occupied, more or less completely, the islands of the Malay archipelago, probably then, as now, being coast dwellers. While in that position, the swarming Malayans overran the islands from the Asiatic coast. They had superior culture, and eventually drove the Polynesians eastward. In the western part of Malaysia the first stragglers of the Malayan swarm, few in numbers, and so not dangerous to the Polynesians, would be assimilated in speech and habits by the Polynesians. Later, when the irresistible Malayan invasion reached these people, "this body of naturalized Polynesian Malays would be the first to feel the attack and would scatter wherever their fleets could carry them; yet, as soon as peace was made, they would prove readily assimilable [again] with their parent Malayan stock. This provides a sufficient explanation why we find the most archetypal Malay at points so sundered as the Malagasy of Madagascar, the Punans, Klemantans, and Kayans of North Borneo, and several tribes of the Philippines, and why, in conjunction with the most archaic Malay, we find equally the purest preservation of the Polynesian."

On the second point, that of the origin and early development of human speech, Mr. Churchill concludes, on page 173, as follows: "Only set the Polynesian speech free from the hindrance and the misleading of the Malayan association, and the students of speech may press bravely on to the discovery of the beginnings of man speech."

He begins with the hypothesis that "the unmixed vowel is the whole speech of the beast," and that it is by the consonantal sounds, the various "stops" preceding, following, and infixing the beastly vowel sounds, that man learns to adapt the speech of the beast to his own developing vocal needs. The backward trail Mr. Churchill follows is from the most highly developed *analytic*

type of language to its beginnings in *inflectional* language, from that to its beginnings in *agglutinative* language, and from that to its beginnings in the still simpler *isolating* language. In that isolating language he penetrates to the *monosyllabic* type of vowel sounds stopped by consonants. "It it there," Mr. Churchill says, "that speech begins."

Here certain other students of language development take serious issue with Mr. Churchill. They derive both the isolating and the inflectional language from the agglutinative.

Vowel sounds are few in beastial speech, Mr. Churchill says. Speech is varied and becomes human not so much by addition of vowel sound as by the invention of "stops" or consonants. The labial nasal *m* is everywhere present in Subanu. "There is abundant reason to regard this consonant as the earliest acquisition of man and the foundation of human speech." Next the lingual nasal *n* is common; while the next most common is the palatal nasal *ng*. Those easy nasal stops are the first invented; "next after the easy nasals the speech-power passes to the ultimate attainment of the mutes—the labial *b*, *p* sounds, the lingual *d*, *t* sounds, and the palatal *g*, *k* sounds. After which various intermediate sounds are acquired. "It is in regard to these intermediate positions that we estimate the development of languages as a matter of evolutionary history."

Mr. Churchill finds that the Subanu vocabulary further confirms the conclusions his earlier studies of Polynesian and Melanesian languages suggested to him—viz., the route along which man passed in the development of consonant sounds making human speech out of earlier beast speech.

Mr. Churchill's effort in the second phase of this study to get back to the beginnings of human speech is especially praiseworthy. Too few students of primitive culture are interested in cultural beginnings. It would be most interesting if Mr. Churchill could more widely test his theory of vowel modification based on his numerous studies in Polynesian, Melanesian, and Malayan languages. For instance, such a test might be made on the language of the Bushman of South Africa, and the unknown language of the Negrito of northeastern Luzon of the Philippines.

ALBERT ERNEST JENKS,
University of Minnesota.

EUROPE

The Modern British State. An Introduction to the Study of Civics. By H. J. Mackinder. 270 pp. Index. G. Philip & Son, London, 1914. 1s. 6d. $7\frac{1}{2} \times 5\frac{1}{2}$.

The author says the book "aims at giving a description of the social organism known as the United Kingdom. It states how existing facts have come to be in order to make their relations clear, but it has nothing to do with the remedies proposed for the misfits which may have developed in the course of recent growth. Both economic and legal phenomena are dealt with, for it is impossible to separate them in a concrete description."

The study of an agricultural village sets forth the subject of production; a countryside, law and order; a market town, bankers and lawyers; a county town, administration; a great railroad, transport; the fish industry of Grimsby, distribution; and, in the same manner, many other topics are treated until the Throne, itself, and its relations to the State are discussed.

The book is intended as an introduction to the study of Civics. It is the sixth book in Mackinder's series—Elementary Studies in Geography and History. Though the topics are treated in an elementary manner, Mackinder writes with so charming a style that the work may well be read with interest by adults as well as by young students.

WILBUR GREELEY BURROUGHS.

Our Island History. An Elementary Study in History. By H. J. Mackinder. (Elementary Studies in Geography and History). 320 pp. Maps, ills., index. G. Philip & Son, London, 1914. 2s. $7\frac{1}{2} \times 5\frac{1}{2}$.

This book, a history of England, comes second in Mackinder's series—Elementary Studies in Geography and History.

The method is to unite history and geography in one book, and to show the interrelations between the two subjects. In explanation, Mackinder writes: "We study geography and history in order to obtain an outlook into the space around us and into the time before and after us. No fact can exist and no event can take place except both in space and in time. Therefore, every fact and event have both a geographical and an historical aspect. Space and time cannot be separated, except in books. It is because they are to a large extent separated in our school-books that history and geography often seem so unpractical to our children. We may emphasize now the time relations and now the space relations of the facts of the world, always provided that we maintain enough of both space and time for vivid and definite imagination. In this book we endeavor to give a sense of the stream of time, so that the present may be realized as the outcome of the past. But all through, the map of Britain, familiar from the previous book of the series, is utilized to set each event into its landscape. Our school study of geography and history should be a practical introduction to the right use of the newspaper, magazine, and travel of the after-school world."

Wherever possible, the original source of information is given. For example, in telling of the Norman Conquest, the Bayeux Tapestry is mentioned several times. Mackinder does this not only because it appeals to the child, but also because "just as the habit of thinking in terms of the map dispels vagueness of thought, so the habit of testing the credibility of statements is a cure for credulity."

When new names, that have a meaning, appear for the first time, their meaning is explained. For example, take the word O'Neil. O' in Irish means "the descendant of." There are numerous drawings and some maps. The book is a most interesting and suggestive elementary history.

WILBUR GREELEY BURROUGHS.

Flintshire. By J. M. Edwards. (Cambridge County Geographies). 172 pp. Maps, ills., index. G. P. Putnam's Sons, New York, 1914. 1s. 6d. 7½ x 5.

The book is a brief outline of the story of the smallest of all Welsh counties and can be used to advantage in English and Welsh schools, not as a text book but as a teachers' handbook, giving a concise and carefully arranged summary of the important facts of Flintshire. The twenty-two topical heads under which the subject matter is treated make it in truth a storehouse of general information, concisely put, concerning the political history, antiquities, mineral wealth and natural resources of the county. It is stimulating to further study in all of these subjects. The style is good, the facts are arranged in an orderly and interesting manner, the illustrations add to the vividness of the text and the maps give an added value.

JOHN B. TORBERT.

The Growth of English Industry and Commerce during the Early and Middle Ages. By W. Cunningham. 5th edit. 724 pp. Index. 12s. 6d. In Modern Times. Part 1: The Mercantile System. 608 pp. 10s. Part 2: Laissez Faire. pp. 609-1039. 7s. 6d. University Press, Cambridge. G. P. Putnam's Sons, New York, 1910, 1912. 9 x 6.

This is a new and greatly revised edition of a well-known work which, as a single volume of less than five hundred pages, appeared originally in 1882. Since then it has been greatly enlarged until it now appears in three substantial volumes, embracing over 1,700 pages of highly interesting and authentic material. Vol. 1 considers English industry and commerce during early times and the Middle Ages; Vol. 2 deals with development during the period covered by the Mercantilist system of commercial policy, and Vol. 3 considers the development during the most interesting period of all—the century and a half since the dawn of the industrial revolution.

A comparison of the first and fifth editions bears witness to the wonderful development which English economic history, as an academic subject, has undergone within thirty years. Numerous monographs have appeared shedding light upon topics which previously had been but little understood. Various re-

searches have resulted in adding considerably to the volume of knowledge upon social and economic conditions in particular areas. The findings of such researches have been incorporated in the present work, mainly in the way of amplifying and expanding the views previously expressed by the author in earlier editions.

The present edition, as compared with the first, displays a breadth and depth of treatment which testifies to the greater maturity of the author. As a college lecturer, Mr. Cunningham has had occasion to cultivate his chosen field almost continuously and, in the light of long experience, has come to see things now in truer proportion than he saw them twenty-five years earlier. Practically all of the material has been rewritten for the present edition. In spite of numerous ramifications, there is a continuity to the story of English industrial and commercial development as told by Mr. Cunningham. Copious footnotes give additional examples of points treated in the text. Much care has been exercised in giving references to authorities. A classified bibliographical index of more than fifty pages will be invaluable to those who may desire further to pursue the study.

AVARD L. BISHOP.

THE WORLD AND PARTS OF IT

The Myths of Mexico and Peru. By Lewis Spence. 367 pp. Map, illus., index. T. Y. Crowell Co., New York, 1913. \$2.50. 8½ x 6.

A learned and valuable work on the mythology of Mexico and Peru. It is an important contribution to the archaeology and ethnology of North and South America. Although it is stated that the question of ancient American alphabets is most important in the present state of archaeology, the matter is not treated at great length. About three-quarters of the volume is devoted to the manners, customs, religion and mythology of Mexico, the remaining quarter being given to the corresponding topics as regards Peru. The work is handsomely illustrated by competent artists, and good photographic reproductions are given of Mexican and Peruvian deities, architecture and other antiquities. The whole subject is treated in a thoroughly modern and scientific manner, with a view to properly placing Mexican and Peruvian folk-lore in comparative mythology. The important position defended is, that the religion, art and architecture of Mexico, Central America and Peru are native to the soil, although the origin of American man is probably Asiatic, brought about in tertiary time, by way of Bering Strait.

A striking peculiarity of Mexican and Peruvian worship, is the prevalence of human sacrifices in their religious rites. Among both peoples astronomical methods of time-reckoning were employed. While creation myths were common to both, a polytheistic nature worship was in vogue, with a tendency to elevate into supremacy an air or sky deity, like the Hebrew Yahweh. The processes of mummification in use among the Peruvians were wholly different from the Egyptian methods, desiccation being commonly employed, and the bodies being fixed in a sitting posture enclosed in a cist of stones. Maps of the regions described are supplied, as also an extensive bibliography, with notes on the pronunciation of the Mexican, Peruvian and Mayan languages, as well as a complete index and glossary of terms used.

DAVID H. BUEL.

A Practical Handbook of the Tropical Diseases of Asia and Africa. By H. C. Lambart. xv and 324 pp. Ills., index. C. Griffin & Co., Ltd., London, 1914. 8s. 6d. 8 x 5½.

The book is intended for the medical practitioner in Tropical Asia and Africa. The temperature charts, drawings, and colored plates throw much light on the matters treated in the work. The useful didactic method of inserting theoretical treatises just before they are to be used in practical work will be of service to the medical man. Such are the theoretical chapters on aids to diagnosis, bacteriological methods, biological definitions, diets, tropical insects and vermin, water analysis, and a full therapeutical index, giving the formulæ of prescriptions that have been found practically serviceable. The general

reader will peruse with interest the accounts of the sleeping sickness and of beri-beri. This latter disease is said to have been practically eliminated from the Japanese Navy by increasing the nitrogenous ration and diminishing the carbohydrates.

DAVID H. BUEL.

Handbuch der Regionalen Geologie. Herausgegeben von Prof. Dr. G. Steinmann und Prof. Dr. O. Wilckens. Heft 1: Dänemark. Von N. V. Ussing. 38 pp. Mk. 1. 60; 2: Island. Von J. Pjeturss. 22 pp. Mk. 1. 20; 3: The Philippine Islands. By W. D. Smith. With a chapter on the lithology by J. P. Iddings. 24 pp. Mk. 1. 20; 4: Die mittelatlantischen Vulkaninseln. Von C. Gagel. 32 pp. Mk. 1. 40; 5: New Zealand and adjacent Islands. By P. Marshall. 78 pp. Mk. 3. 50; 6: Madagascar. By P. Lemoine. 44 pp. Mk. 2. 10; 7: La Péninsule Ibérique, A.—Espagne. By R. Douvillé. 175 pp. Mk. 8; 8: Persien. Von A. F. Stahl. 46 pp. Mk. 2. 80; 9: Oceania. By P. Marshall. 36 pp. Mk. 1.60; 10: Armenien. By F. Oswald. Mk. 2. 80; 11: United States of North America. By E. Blackwelder. 258 pp. Mk. 11; 12: Niederlande. By G. A. F. Molengraaff and W. A. J. M. van Waterschoot van der Gracht. 98 pp. Mk. 4. Maps in each. C. Winter, Heidelberg, 1913.

This excellent work aims to present a general account of the geology of the world. Of the fifty-five parts into which the work is divided, twelve have thus far appeared, all but two of which (those dealing with the United States and Armenia) are here briefly reviewed. The various regions of the globe are described by different authors, but one plan of treatment is usually followed. After a brief synopsis of the morphology, the stratigraphy and petrology of each region are discussed at some length and a summary of the geological history is given. The orographic elements may then be presented more fully, after which economic geology is described. A bibliography for the region concludes each number. Individual authors alter this plan of treatment in a few cases.

N. V. Ussing describes the geology of Denmark in a fascicle of some three dozen pages, calling attention to the participation of the northeastern part of the country in the post-glacial uplift of Scandinavia, and to the earthquakes to which this region is subjected. The orographic elements of the country are described under the three headings: Bornholm Island, all but the southern end of which belongs to the oldland of Scandinavia; the Danish Plain, a part of the ancient, glaciated coastal plain which flanks the oldland on the south; and the Faroe Islands, a group of basaltic islands north of Scotland deeply scarred by glacial erosion. Iceland is more briefly treated by H. Pjeturss, who describes it as a basalt plateau, broken by fault lines, dissected by stream erosion, and strongly glaciated. Above the plateau rise volcanic cones, and on its surface rest several ice fields. Vulcanism and glaciation have alternately and repeatedly affected the same areas, moraines and basalt flows occurring in interstratified series.

In the third fascicle Warren D. Smith discusses briefly the Philippine Islands, which appear to be a maturely dissected and partially submerged mountain system with principal axes extending north-south, and a group of minor ranges trending northeast-southwest. The mountain slopes usually descend rather abruptly to the water, but occasionally a narrow, ragged fringe of coastal plain has resulted from uplift. Volcanoes are arranged along parallel fissures, or groups of fissures, which coincide with the anticlinal axes of the islands. J. P. Iddings contributes a chapter on "lithology," and this, together with liberal quotations from other writers on Philippine geology, constitutes one-half of the descriptive text.

The volcanic islands of the Middle Atlantic are described by C. Gagel, who, after a few introductory paragraphs, presents a short account of the Cape Verde, Azores, Salvage and Madeira Islands, and a more detailed account of the Canaries. The author notes that ancient sedimentary and volcanic rocks belonging to the European-African continental mass are found in some of the Cape Verde and Canary Islands, and concludes that the islands were separated from the mainland in comparatively recent times, since the island flora and fauna show close relationship with those of the nearby continents.

New Zealand receives a more extended treatment in a fascicle of nearly eighty pages written by P. Marshall. According to this author the two main islands of New Zealand represent partially submerged mountain systems, most of which are due to complex folding, while others, believed by some to be block mountains, are described as the product of stream erosion upon an uplifted peneplain. In the southern island, glacial troughs with their associated hanging valleys are numerous, and magnificent fiords indent the southwestern coast. Vulcanism has done more to give the northern island its present form, a plateau of pumice and rhyolite flows partially covering the older mountain folds and supporting on its surface volcanic cones of striking magnitude. Bordering both islands are narrow plains of gravel and elevated beaches. Numerous topographic features are described in terms of their relation to local lakes, rivers, and towns not shown on any map in the report, with the result that the reader is unable to extract any intelligent idea from whole paragraphs of the text which undoubtedly contain important information.

From Paul Lemoine's account of Madagascar the geographical reader infers that this large island represents an oldland of crystalline rocks bordered on the west by an ancient coastal plain so dissected as to show one prominent river lowland drained by subsequent rivers, and a less conspicuous subsequent depression nearer the western shore; while on the east the oldland ends abruptly in a fault scarp believed to be of recent date, and characterized by readjustments giving frequent earthquakes. Stratigraphy and lithology are discussed at much length, while a good review of the economic geology of the island concludes the report.

Spain receives a more extended treatment than any other region covered by the ten fascicles here reviewed. Yet the geographer will regret that in his 162 pages of text Robert Douvillé has said so little about the morphology of the country. Nearly three-fourths of the report is devoted to an elaborate account of the stratigraphy, most excellently illustrated with maps and diagrams. Petrographic details of the eruptive rocks, and the structural features of the peninsula are treated at length, as is also the economic geology.

In his account of Persia, A. F. Stahl classifies the mountain ranges of the Iranian highland according to the trends of their axes, and discusses briefly the forces which produced the ranges and the Caspian and Aral depressions. Valuable space is sacrificed to a detailed description of mountain trends and to lists of rivers classified according to hydrographic basins, data which could much better be presented by means of a map. The section on orographic elements deals too largely with the directions, heights and breadths of mountain ranges, and too little with the more significant elements of form and structure.

Oceania as described by P. Marshall includes the smaller islands north and east of eastern Australia. The grouping of the islands into belts within each of which the geological conditions are rather uniform, and the form of oceanic ridges and troughs are discussed; but the morphological significance of these details receives little attention. The various island groups are described, and it is shown that most of them are of volcanic rock or coralline limestone. With few exceptions the islands are surrounded by coral reefs. Marshall reviews briefly the various theories as to the origin of these reefs, and concludes that Darwin's hypothesis of a subsiding ocean floor is the best explanation, at least, for the reefs in the Cook and Society Groups.

A fascicle of nearly a hundred pages describing the Netherlands has been prepared by G. A. F. Molengraaff and W. A. J. M. van Waterschoot van der Gracht. While the present surface of the country is largely formed by the deltas of the Rhine and the Meuse, older beds are exposed in the dissected uplands or south Limburg and in the low hills of the east-central part of the country. The delta plain is dissected and terraced by the rivers, and its northern portion is covered by morainal and other glacial deposits. All but half a dozen pages of the report are devoted to stratigraphy and geological structure.

Throughout the work as a whole the stratigraphic geology is most emphasized, while physiographic geology receives the least attention. For the student of stratigraphy and historical geology the work will have its highest value.

D. W. JOHNSON.

The British Colonies and Dependencies, their Resources and Commerce. With chapters on the interchange of productions and climatic conditions. By M. J. C. Meiklejohn. 10th edit. (Meiklejohn's Series). 96 pp. Maps. Meiklejohn & Son, London, 1913. 6d. $7\frac{1}{2} \times 5$.

The physical, political, and commercial geography of the British colonies and dependencies is briefly considered. The factors determining the climate, the interchange of productions, the value of the commerce of the different colonies and other topics are discussed, and commercial tables, etc., are given. The author writes that "as few figures have been given as possible."

WILBUR GREELEY BURROUGHS.

MATHEMATICAL GEOGRAPHY AND CARTOGRAPHY

The "Conway" Manual. being a complete summary of all problems in navigation and nautical astronomy, with proofs of formulas, for the use of officers in the mercantile marine and students. By J. Morgan, T. P. Merchant and A. L. Wood. 79 pp. Ills. 5s. J. D. Potter, London, 1914. $10 \times 6\frac{1}{2}$.

This book, from the staff of H. M. S. *Conway*, school-ship, is designed for the use of those navigators who wish to understand the underlying facts from which the usual "rule of thumb" methods are obtained. It is a collection of formulas and methods required for solving plane and spherical triangles. Nothing is taken for granted; all formulas are proved, in fact, some of the deductions seem to be needlessly elaborated.

Navigation is applied trigonometry, and though by no means pretending to be a treatise on navigation or nautical astronomy, the manual aims to give the navigator a firm grasp of principles and to bring out clearly the dependence of his operations upon the solution of plane and spherical triangles. All the typical problems are completely solved, thus supplying a set of forms after which similar problems may be subsequently worked out. The diagrams are numerous, the type large and clear, and the arrangement of the work excellent.

JAMES GORDON STEESE.

Maps and Survey. By A. R. Hinks. 206 pp. Maps, illus., index. University Press, Cambridge, 1913. 9×6 .

"This book is designed as an introduction to the study of maps and the processes of survey by which they are made." For the geographer or explorer, especially, it gives an excellent exposition, unobscured by much detail, of the problems to be solved, the results that may reasonably be expected, and the sources of more detailed information.

The eight chapters are entitled, respectively, Maps, Map Analysis, Route Traversing, Simple Land Survey, Compass and Plane Table Sketching, Topographical Survey, Geodetic Survey, and Survey Instruments. Examples of typical maps from the principal surveys of the world are reproduced and their relative merits analyzed. The survey is developed from the operations of the explorer and first settler to the finished geodetic work of an established government. Plane table methods are emphasized. In Chapter 8, the merits and limitations of various instruments and methods are discussed. The illustrations are numerous and well-selected, and the typography excellent.

JAMES GORDON STEESE.

Der Kompass. 1: 46 Tafeln und Verzeichnis derselben. Von A. Schück. The author, Hamburg, 1911. $14 \times 11\frac{1}{2}$.

This portfolio consists of sixteen large pages of descriptive matter and about 800 cuts grouped into forty-six plates. These cuts illustrate the development of the modern mariner's compass from the lodestones, floating magnets, and magnetized fish of the early orientals.

The material represents the work of many years and was collected from a variety of sources, all duly acknowledged. There is a complete descriptive catalogue of the cuts. Many of the individual cuts are also appropriately labelled. All details of the compass, needle, card, bowl, control mechanism, etc.,

are profusely illustrated in the various forms. There are many beautiful plates in color of ancient and modern compass cards, especially the highly ornate ones of the 14th-16th centuries. On them may be traced the evolution of the modern card from the windroses of the ancients. All the principal maritime powers are represented in the collection. Some of the very latest instruments of different makes are shown.

The printing and engraving are excellent, but the binding is very poor. Most of the cuts are small so that a smaller sheet would be less unwieldy. Less crowding of the individual figures and board covers would add much to the convenience of the reader.

JAMES GORDON STEESE.

A Little Book on Map Projection. By Mary Adams. 108 pp. Ills., index. G. Philip & Son, London, 1914. 2s. $8\frac{1}{2} \times 5\frac{1}{2}$.

This little book gives a useful and teachable account of map projections without using a single trigonometrical equation. It follows the general lines of Mr. Hinks's recent authoritative work to which the author acknowledges her indebtedness and to which she refers the reader who wishes to go into the more complicated calculations.

The book is intended as an introductory course for secondary schools specializing in practical geography and for this purpose it is admirably adapted. The pupils' interest is increased and the descriptions are elucidated by numerous concrete illustrations from mechanics, physics, and geometry. A special feature is that all the projections are drawn to the scale of a two-inch globe and are, therefore, directly comparable. The treatment is very lucid and interesting. It would add to its usefulness if the table of contents and the work itself were arranged by group subjects or chapters. JAMES GORDON STEESE.

Praktische Erdkunde, Übungen und Beobachtungen. Von Karl Rüsewald. 176 pp. Maps, ill., index. F. Hirt, Breslau, 1914. Mk. 3. 9 x 6.

This book aims to furnish the teacher of geography with the means of making his pupils comprehend various geographical questions through numerous practical exercises and experiments. It comprises an excellent introductory course, giving the elements of topography, map-making, astronomy, geology, meteorology, commerce, and photography, in this order, in their relation to geography. Common instruments and methods are illustrated and explained. For fuller information the reader is referred to an extensive bibliography arranged by sections to correspond with the body of the work.

The exercises are progressive in their scope and most of them, with a little ingenuity on the part of the instructor, may be performed without special or expensive equipment. For example, the first chapter begins with simple scale problems and plans of the school playground, then of the town, etc. Next contours are explained by models of elementary hill-forms, and so on.

Astronomy and geology take up about half the book. The latter subject is specially well illustrated, but the student, in addition, is required to make excursions into the surrounding country to see for himself the various rock formations, effects of erosion, observe the flow of streams, etc.

JAMES GORDON STEESE.

Geological and Topographical Maps. Their Interpretation and Use. A Handbook for the geologist and civil engineer. By Arthur R. Dwyer-house. 133 pp. Ills., index. E. Arnold, London, 1911. 4s. 6d. 9 x $5\frac{1}{2}$.

In the United States we should call this a laboratory manual. It corresponds in good part to the instruction given to students of geology in our universities; the main topic, after a brief statement of the earth's structure, being how to read and interpret geological maps and construct sections from them. A tribute is given to the United States topographic maps for their beauty and clearness that is both unusual and welcome in English works. The author criticizes British contour printing for its failure to produce the effect of relief. He makes no explicit criticism, however, of the British habit of

using two or more contour intervals on the same map, which is necessarily fatal to relief expression. On very large scale maps, he says, contours are too far apart to express hill-shading. That of course is only true if the contour interval is not diminished proportionally. These points are not meant as criticism for the author is abandoning a somewhat narrow British view in the matter. His book is admirable, clear and surely useful.

MARK JEFFERSON.

Contours and Maps: Explained and Illustrated. By Frederick Morrow. 116 pp. Maps, diagrams. Meiklejohn & Son, London, 1913. 1s. 6d. 7½ x 5.

This little book is a manual of instruction in passing English geography examinations, and it is admirably adapted to that end for readers of very little preparation.

The oroscopic maps that are offered as examples of expressive contouring have their white and dark contours so wide as inevitably to suggest models cut out of cardboard with distinct cliffs at each contour, much inferior to good fine-line contours.

But the greatest interest of the book to an American student of geography is the point of view, an utterly strange one to us. Not geography, not maps, nor even British contour maps are the subject of the book, but such aspects of British contour maps as have seemed important to British examiners. No such book could be printed in America. Our nearest equivalent is the unpublished instruction of some private tutors who get men of doubtful mentality through university examinations. Such an attitude is unfortunate for British geographical instruction, for the teacher who discovers that the British contouring is inferior to that executed by others is forbidden by the examination system to teach the better, but must stick to the worse. There will be no inspiration in his teaching. Moreover there is little chance of getting more expressive contouring into the Ordnance Survey maps—anything even remotely approaching the work of Matthes in this country—as long as examinations are able to exercise this inbreeding effect on methods.

MARK JEFFERSON.

Didaktik der Himmelskunde und der Astronomischen Geographie. Mit Beiträgen von W. Foerster, K. Haas, M. Koppe, S. Oppenheim, A. Schülke. Verfasst von Dr. Alois Höfler. xii and 414 pp. Ills. B. G. Teubner, Leipzig, 1913. Mk. 11. 10 x 6½.

The author shows how to overcome the traditional verbalism which has made the teaching of mathematical geography and astronomy such a thankless task in the lower and higher schools. He discusses the causes and effects of the neglect of this study and gives directions how to make the teaching of it real and full of interest for pupils of all ages, how to lead them to an actual understanding of astronomic facts and laws based on observation, instead of learning by heart paragraphs from textbooks. That even textbooks cannot always be relied on he demonstrates by an amazingly large collection of erroneous statements quoted from such books. Although based on the conditions in Austrian schools, the message of the book is not bounded by political lines. The defects of astronomical instruction which are here criticized are liable to be felt by the conscientious teacher of the subject in every country, and many will find in it advice and inspiration for their work, outlines of practical plans of study, suggestions for practical observation for the making of simple apparatus where means are limited, etc. The text is illustrated by many diagrams and two plates.

M. K. GENTHE.

GENERAL

A Pilgrim's Scrip. By R. Campbell Thompson. xii and 345 pp. Map, ills., index. John Lane Co., New York, 1915. \$3.50. 9 x 6.

The diary of a savant of the spade and pick, engaged in excavating archaeological finds, and in transcribing cuneiform inscriptions for the British Museum. In a droll, whimsical style, abounding in little-used words and terms,

he describes his everyday experiences, in the course of his association with native workmen, doing his digging work, with oriental guides and headmen, and with other experts of different nationalities, engaged in similar pursuits. A typical example of his very unusual and very peculiar style may be seen in the following passage. "This very name *Mosul* has given title to a weaver's stuff, for among strange word-pedigrees *muslin* holds high rank, that dominies may muse on its descent. For, as saith the learned Marco Polo, it was first manufactured here, inheriting the name *Mussolino* or *Mouseline*; and yet *Mosul* is but the Arabic *Mawsil*, which the Arabs, in their simpleness, think to mean 'the place of arrival,' not wotting that Xenophon had known the name *Mespila*, long before Arabic had ousted its cousin languages. But this place *Mespila*, when Xenophon speaks of it, was already a waste; perhaps the inhabitants of its departed glories told him in their Assyrian tongue that *Mushpalu* meant 'low-lying spot.' But alack! the weaving of these cloths has ceased, driven out by the Joseph-coloured plagues of Manchester."

The finest piece of writing in the diary is the description of Rawlinson's deciphering of the inscription of the Persian King Darius at Behistun. The writer holds a strong brief for the manhood and valor of the ancient Persians against the charges of effeminacy and cowardice, brought against them by their Greek foes, and inculcated by the average, classical teacher in his lessons to the average schoolboy. An appended "envoy" forms a sort of preposterous preface to the work.

DAVID H. BUEL.

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WORLD AND PARTS OF IT

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- GRAVES, H. S. The Place of Forestry among Natural Sciences. *Science*, No. 1047, Vol. 41, 1915, pp. 117-127.
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NEW MAPS

EDITED BY THE ASSISTANT EDITOR

For system of listing maps see p. 75 of this volume

MAPS ISSUED BY UNITED STATES GOVERNMENT BUREAUS

U. S. GEOLOGICAL SURVEY

Arizona. Mesa Quadrangle. Surveyed in 1903-1904 and 1913. 1:62,500. 33°30'-33°15' N.; 112°0'-111°45' W. Contour interval 25 ft. Edition of April 1915.

Arizona-New Mexico. Morenci Quad. Surveyed in 1900-1901 and 1912-1913. 1:125,000. 33°30'-33°0' N.; 109°30'-109°0' W. Interval 100 ft. Edit. of Mar. 1915.

[The southwestern quarter is a reduction of the Clifton sheet, 1:62,500, published in 1902.]

California. Ronda Quad. Surveyed in 1905. 1:31,680. $38^{\circ}52'30'' - 38^{\circ}45'0''$ N.; $121^{\circ}52'30'' - 121^{\circ}45'0''$ W. Interval 5 ft. Edit. of Apr. 1915.
[Belongs to the two-inches-to-the-mile series covering the Sacramento-San Joaquin Valley.]

Illinois-Missouri. Chester Quad. Surveyed in 1912-1913. 1:62,500. $38^{\circ}0' - 37^{\circ}45'$ N.; $90^{\circ}0' - 89^{\circ}45'$ W. Interval 20 ft. Edit. of Mar. 1915.

Kentucky. Hindman Quad. Surveyed in 1912. 1:62,500. $37^{\circ}30' - 37^{\circ}15'$ N.; $83^{\circ}0' - 82^{\circ}45'$ W. Interval 50 ft. Edit. of May, 1915.
[Co-extensive with the northwest quarter of the old Whitesburg, Ky.-Va., sheet, 1:125,000, last published in 1892.]

Minnesota. Vergas Quad.* Surveyed in 1912. 1:62,500. $46^{\circ}45' - 46^{\circ}30'$ N.; $96^{\circ}0' - 95^{\circ}45'$ W. Interval 10 ft. Edit. of Feb. 1915.

Nebraska-Missouri. Nemaha Quad.* Surveyed in 1911-1912. 1:62,500. $40^{\circ}30' - 40^{\circ}15'$ N.; $95^{\circ}45' - 95^{\circ}30'$ W. Interval 20 ft. Edit. of April, 1915.

New York. Churubusco Quad. Surveyed in 1912. 1:62,500. $45^{\circ}0' - 44^{\circ}45'$ N.; $74^{\circ}0' - 73^{\circ}45'$ W. Interval 20 ft. Edit. of May, 1915.

NORTH AMERICA

UNITED STATES

United States, etc. New Official (Railroad) Map of the United States and Southern Canada. 1:2,217,600. $54^{\circ} - 24^{\circ}$ N.; $128^{\circ} - 65^{\circ}$ W. 13 colors. Rand, McNally & Co., Chicago and New York, current date. Price \$35.00.

[The value, to a geographer, of maps showing the railroad systems of a country in distinctive colors has occasionally been dwelt upon in this department. This value is all the greater in the case of countries like our own, where, owing to private ownership, the different systems are, on the map, almost hopelessly intertwined; if for no other reason than to distinguish them, colors are necessary. In this respect the present map will be found very helpful: its large scale makes possible a clear treatment of even the densest network of lines, as in the Middle West, for instance. About twelve different colors are used; by avoiding the use of the same color for adjoining or overlapping systems no more colors are needed to portray the incomparably greater number of existing railroad systems. The colors are applied by hand, on a black-and-white wax-engraved base map. State boundaries are shown by yellow bands: this seems unnecessary, as it only tends to obscure the colors where the lines run within the band, as between Chicago and Milwaukee or along the lower Columbia. There is no general key showing at a glance the symbols used for the various systems: each system can only be identified by referring to the abbreviations of its name which are printed along each line in small black type. As regards symbolism, the present map has, therefore, not mastered the problem as successfully as Aberle's admirable railroad map of the United States (reviewed in the *Bull.*, Vol. 46, 1914, pp. 875-876), on which practically a distinctive symbol is used for each system; nor has it done so as regards reproduction, for both Aberle's map and a similar one by Gray (see under "United States," *Bull.*, Vol. 44, 1912, p. 155) are printed and not hand-colored. However, the question of size of sales might be a determining factor. As regards scale, the present map has somewhat of an advantage over the other two, being in 1:2,217,600, as against 1:2,750,000 for the Gray map and 1:3,168,000 for Aberle's; and this gives it an important place among the maps of its class.]

SOUTH AMERICA

Brazil, etc. Die Amazonas-Waldgebiete. Entworfen von Ludwig Koegel. 1:7,500,000. 12° N. - 16° S.; $82^{\circ} - 44^{\circ}$ W. 4 colors. Accompanies, as Taf.

* On these sheets woods are shown in green.

30, "Die Urwaldgebiete Amazoniens: Begleitworte zur Karte auf Tafel 30" by L. Koegel, *Petermanns Mitt.*, Vol. 60, II, 1914, Nov., pp. 226-227.

[Valuable map showing the extent of the equatorial rain forest within the limits of the natural region of "Amazonia," based on an exhaustive study of the relevant literature (the article is a summary of a thesis). Distinction is made between the vast expanse of the equatorial forest and the interspersed enclaves of savanna (mainly in the east). Superimposed on the author's interpretation, with which they broadly tally, are the savanna areas according to an important Brazilian publication by Gonzaga de Campos, unknown to the author at the time of compilation, and the western boundary of "Amazonia" and of the distribution of *Hevea brasiliensis*, according to Walle. Between the Mamoré and the Tapajoz the boundary of the equatorial forest is indicated as hypothetical: the results of the Roosevelt-Rondon expedition would seem to make it probable that there is a reentrant of the equatorial forest up the valley of the Rio Theodoro. At all events, the "spur" of savanna indicated to the west of the Tapajoz by Gonzaga de Campos is thus shown to be hypothetical in its outline, as, on its western side, it would run athwart the now known course of the Rio Theodoro valley (if that river were shown on the map)—a phytogeographic improbability.]

AFRICA

Egypt. Reise im Nordosten der Libyschen Wüste 1914. Von Paul Borchardt. 1:500,000. 30°33' - 28°0' N.; 28°32' - 31°15' E. 4 colors. Accompanied, as Taf. 24, "Im Nordosten der Libyschen Wüste" by P. Borchardt, *Petermanns Mitt.*, Vol. 60, II, 1914, Oct., pp. 179-183.

[Valuable map on a relatively large scale of the section of the Libyan Desert immediately adjoining the Nile to the west of the latitude of the Fayûm. Relief is shown in brown hachuring, drainage in blue, fertile areas in green, sand dunes in yellow. The author's route, shown in red, was chosen with a view to avoiding the routes of previous explorers (which are also shown). It led from the Fayûm west-northwest to the *hattia* Moghara, thence south to the oasis Baharia, and east to the Nile again at Minia.]

Morocco. Das Sus in Süd-Marokko. Nach allen vorhandenen Quellen gezeichnet von R. Schleifer. 1:400,000. 31°0'7" - 29°40' N.; 10°3' - 7°58' W. 3 colors. Accompanied, as Taf. 32, "Das Sus in Südmarokko: Bemerkungen zu Karte auf Tafel 32" by R. Schleifer, *Petermanns Mitt.*, Vol. 60, II, 1914, Nov., pp. 220-221.

[Valuable map, based on all available material, of the Sus region, the important gateway into Morocco from the Atlantic side. Relief is in brown hachuring; drainage in blue; the Sus plain in green. The text contains a list of the maps used in the compilation.]

EUROPE

France, etc. Die Organisation des Luftfahrwesens in Frankreich vor Ausbruch des Krieges. 1:1,200,000. 52° - 43° N.; 2½° W. - 9½° E. 9 colors. With inset: Paris und Umgebung. 1:150,000. 4 colors. Accompanied, as Taf. 33, "Luftfahrtstationen" by A. Hildebrandt, *Petermanns Mitt.*, Vol. 60, II, 1914, Nov., pp. 253-254.

[Overelaborate map, enlarged from *Stieler's Hand-Atlas*, distinguishing between the boundaries and headquarters of the *groupes d'aéronautiques*, the *ports d'attache*, the seats of the *escadrilles d'avions*, the *centres aéronautiques* and the *centres d'aviation*, and other information regarding the military aviation.]

Russia, etc. Sprachenkarte von Russisch-Polen nach der Ersten Russischen Volkszählung von 1897. 1:1,200,000. 55°42' - 49°40' N.; 16°5' - 25°45'

E. 32 colors. Accompanies, as Taf. 34, "Russisch-Polen: Landeskundliches und Militärgeographisches" by H. Praesent, *Petermanns Mitt.*, Vol. 60, II, 1914, Dec., pp. 257-262.

[Shows, by an ingenious symbolism, the percentages of the various races inhabiting Russian Poland. The unit used is the *uyezd*, the administrative division next in order of size below the *gouvernement*: areal coloring is employed to show the races composing more than 50% of the population, and marginal coloring for those composing less than 50%. In the former category are differentiated 5 percentage grades of Poles, 2 of Russians, 4 of Lithuanians; in the latter 4 of Poles, 5 of Russians, 1 of Lithuanians, 3 of Germans, and 3 of Jews.]

WORLD AND PARTS OF IT

Southeastern Europe and the Near East. Hans Schiltbergers Itinerar. I. 1394-1402. Entworfen von J. Bergbauer. 1:7,500,000. 53°-27° N.; 8°-44° E. 13 colors. Accompanies, as Taf. 35, "Das Itinerar des Münchener Orientreisenden Hans Schiltberger von der Zeit seines Aufbruches aus der Heimat (1394) bis zu seiner Gefangennahme durch Tamerlan in der Schlacht bei Angora (1402)" by J. Bergbauer, *Petermanns Mitt.*, Vol. 60, II, 1914, Dec., pp. 363-365.

[Reconstruction of the itinerary of a Bavarian mercenary of the fourteenth century, sometimes called for his peregrinations in the Orient the "German Marco Polo."]

Other Maps Received

NORTH AMERICA.

North America. Amérique du Nord. 1:28,000,000. Inset: Peuplement de l'Amérique du Nord. Librairie Garnier Frères, Paris [1915?].

CANADA

Alberta. Geological and topographical map of the Moose Mountain region of the "disturbed belt," southern Alberta. 1:126,720. Accompanies "Moose Mountain District, Southern Alberta," by D. D. Cairnes, Memoir 61, Geological Survey, Ottawa, 1914.

Topographical map showing coal areas of the Moose Mountain region of the "disturbed belt," southern Alberta. 1:126,720. Accompanies "Moose Mountain District, Southern Alberta," by D. D. Cairnes, Memoir 61, Geological Survey, Ottawa, 1914.

Manitoba-Saskatchewan. Explored routes in the lower parts of the drainage area of Churchill and Nelson Rivers, Manitoba and Saskatchewan. 1:1,013,760. Accompanies "The Basins of Nelson and Churchill Rivers" by William Innes, Memoir No. 30, Geological Survey, Ottawa, 1913.

UNITED STATES

Alaska. Geologic map of part of Rampart Quadrangle, Alaska. 1:250,000. Accompanies as Pl. iv "A Geologic Reconnaissance of a Part of the Rampart Quadrangle, Alaska," by H. M. Eakin, U. S. G. S. Bull. 535, 1913.

Reconnaissance map of part of Rampart Quadrangle, Alaska. 1:250,000. Accompanies as Pl. 1 "A Geologic Reconnaissance of a Part of the Rampart Quadrangle, Alaska," by H. M. Eakin, U. S. G. S. Bull. 535, 1913.

Florida. Phytogeographic map of south Florida, by J. W. Harshberger. 1:500,000. Accompanies "Transactions of the Wagner Free Institute of Science of Philadelphia," Vol. 7, Part 3, October, 1914.

United States. Rand, McNally & Co.'s general [wall] map of the United States with portions of the Dominion of Canada and Republic of Mexico. 45 mi. to 1 in. [1:2,850,000]. Rand, McNally & Co. [Chicago], 1912. Price \$5.

SOUTH AMERICA

Peru. Mittel- und Nord-Perú [five maps]: (1) Zusammensetzung der Sierra von Süd-Ecuador und von Peru; (2) Zur Übersicht der Einteilung der Sierra in orographische Unterabteilungen sowie der Hydrographie; (3) Zur Übersicht der jetzigen und der Eiszeitlichen Vergletscherung; (4) Zur Übersicht der wichtigsten Vegetationsformationen; (5) Zur Übersicht der Wirtschaftsgebiete, der Wirtschaftsverhältnisse und der Hauptverkehrswege. By W. Sievers. 1:1,200,000. Accompanies "Reise in Peru and Ecuador, ausgeführt 1909," by W. Sievers. Wiss. Veröffentl. d. Ges. f. Erdkunde zu Leipzig, Vol. 8, 1914.

AFRICA

Libya. [3 sheets covering a zone about 5' in width from Agilat to Tripoli and beyond and from Tripoli south to Garián]. 1:100,000. Fo. 1, Záuia; 2, Tripoli; 3, Garián. Istituto Geografico Militare, [Firenze], 1913.

ASIA

Asia. Asie, carte politique. 1:30,000,000. Insets: Asie (ethnographie); Asie (religions). Librairie Garnier Frères, Paris [1915?].

AUSTRALASIA AND OCEANIA

Australia. Map of Western Australia, showing the goldfields and other mining districts, also the distribution of useful minerals. 1:4,752,000. Accompanies "Annual Progress Report of the Geological Survey [of Western Australia] for 1913," Perth, 1914.

EUROPE

British Isles. Geological Survey of Scotland. 1:63,360. Sheets: 110, Latheron; 116, Wick. Ordnance Survey Office, Southampton, 1914.

Europe. Europe politique. 1:15,000,000. Librairie Garnier Frères, Paris [1915?].

Karte des östlichen Kriegsschauplatzes. 1:3,000,000. Dietrich Reimer (Ernst Vohsen), Berlin, 1914. Mk. 1.

Dietrich Reimer's Karte des östlichen Kriegsschauplatzes. 1:1,000,000. Dietrich Reimer (Ernst Vohsen), Berlin, 1914. Mk. 1.

Karten des westlichen Kriegsschauplatzes. [Two joined sheets]: (1) Süd Niederlande und Belgien, 1:1,000,000; (2) Ost-Frankreich, 1:1,250,000. Dietrich Reimer (Ernst Vohsen), Berlin, 1914. Mk. 1.

Dietrich Reimers Kriegsstands-Karte der Deutschen und Österreichisch-Ungarischen Armeen in 14 tägigen Kurven. 1:4,000,000. Dietrich Reimer (Ernst Vohsen), Berlin [1915]. Pf. 50.

Dietrich Reimer's Karte zur Übersicht der gegenwärtigen Kriegslage in Europa und den Mittelmeerlandern. 1:4,000,000. Dietrich Reimer (Ernst Vohsen), Berlin, 1915. Mk. 1.

Mediterranean Sea. Adriatic. East coast, Zirona channel to Curzola. From Austrian surveys to 1901. [1:150,000]. U. S. Hydrographic Office, Washington, Feb. 1915. Chart No. 3958.

Cape San Antonio to Cape Tortosa. From Spanish surveys to 1913. [1:230,000]. Insets: Valencia; Port Gandia; P. Sagunto. U. S. Hydrographic Office, Washington, Dec. 1914. Chart No. 3932.

Gibraltar to Alicante (Europe) and Cape Spartel to Cape Ferrat (Africa), from Spanish and French surveys to 1910. [1:725,000]. U. S. Hydrographic Office, Washington, Feb. 1915. Chart No. 3915.

Ionian Sea: Santa Maura, Ithaca and Cephalonia Islands, with the adjacent coast from Kastrosikia to Kastro Tornese. From British surveys between 1864

and 1872. [1:80,000]. U. S. Hydrographic Office, Washington, Feb. 1915. Chart No. 3961.

North Sea. The North Sea, northern sheet. Compiled from the latest information. [1:640,000]. Chart No. 4843. U. S. Hydrographic Office, Washington, Jan. 1915. Chart No. 4843.

North Sea: Dover and Calais to Orfordness and Scheveningen. Compiled from the latest information. [1:250,000]. U. S. Hydrographic Office, Washington, Feb. 1915. Chart No. 4848.

North Sea: Netherlands, Scheveningen to Ameland, including the Zuider Zee. From Netherlands Government surveys to 1913. [1:200,000]. U. S. Hydrographic Office, Washington, Jan. 1915. Chart No. 4849.

North Sea: Germany, Elbe River, Brunsbüttelkoog to Hamburg. From the latest German surveys. [1:55,000]. Inset: Hamburg and Altona Harbors, 1:13,500. U. S. Hydrographic Office, Washington, Feb. 1915. Chart No. 4909.

Russia. Geologisk Oversiktskarte över Finland. 1:400,000. Sektionerna C6, Rovaniemi; B5, Tornea; B6, Över-Tornea. Beskrivning till Bergartskartan av Victor Hackman. Geologiska Kommissionen, Helsingfors, 1914.

Petrological map of the Orijärvi region, by Pentti Eskola. 1:20,000. Accompanies as map 2, "On the Petrology on the Orijärvi region in southwestern Finland," by Pentti Eskola, Bull. Comm. Géol. de Finlande, No. 40, Helsingfors, 1914.

Petrological map of the Kisko-Kimito leptite belt, by Pentti Eskola. 1:200,000. Accompanies as map 1, "On the Petrology on the Orijärvi region in southwestern Finland," by Pentti Eskola, Bull. Comm. Géol. de Finlande, No. 40, Helsingfors, 1914.

Switzerland. Berner Oberland und Oberwallis. 1:75,000. Accompanies "Jahrbuch des Schweizer Alpenclub," Vol. 48, Bern, 1913.

WORLD AND LARGER PARTS

Southeastern Europe-Near East. Méditerranée orientale. 1:2,500,000. André Lesot, Éditeur, Paris [1915?]. 3 frs.

Dietrich Reimers Generalkarte des Türkischen Kriegsschauplatzes auf Grund der Carte générale des provinces européennes et asiatiques de l'Empire Ottoman von H. Kiepert. 1:3,000,000. Dietrich Reimer (Ernst Vohsen), Berlin, 1914. 1 Mk. 50 Pfg.

World. Rand-McNally library [wall] map of the world. Equatorial scale 1:29,000,000. [On reverse side, United States, q. v.] Rand, McNally & Co., [Chicago], 1912. Price \$5.

ATLASSES

Maps of old London. 27 pp. and 9 maps. A. & C. Black, London, 1908. Elementary atlas of Egypt [in Arabic]. 11 maps. Survey Department, Giza [1914?].

Atlas of the world [in Arabic]. Part 1, 10 pls.; Pt. 2, 10 pls. Survey Department, Giza, 1913.

African war atlas, nine maps showing localities of the fighting in the "German" colonies in Africa. Office of "South Africa," London, E.C. [1915].

Graphisch-Statistischer Atlas der Schweiz, Tafel 1-51b. Statistisches Bureau des eidgen. Departements des Innern, Bern, 1914.

Philips' Comprehensive Atlas. A new and enlarged edition containing 82 coloured plates and a complete index. Edited by George Philip, F.R.G.S. George Philip & Son, Ltd., London [1915?].

Mapa językowa i wyznanowa Galicji, by Wincenty Choroszewski, 4 pp., 2 pls. Nakładem Autora Czcionkami Drukarni Jakubowskiego i Sp., Lwów, 1911. Polish Book Importing Co., New York.



Big Salmon River

FIG. 1—Panoramic view of the massif of Mt. Kitchi, looking north

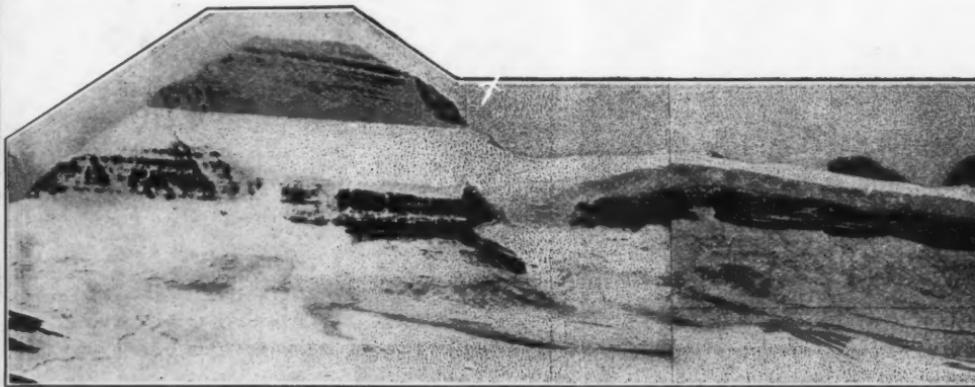
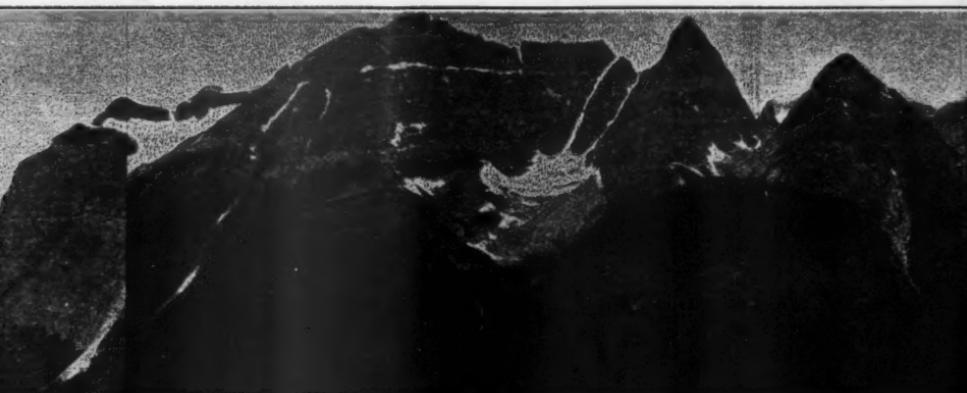


FIG. 2—Panoramic view of the northwest face of Mt. Kitchi taken from
the Big Salmon River, into which the long,

Two Towers



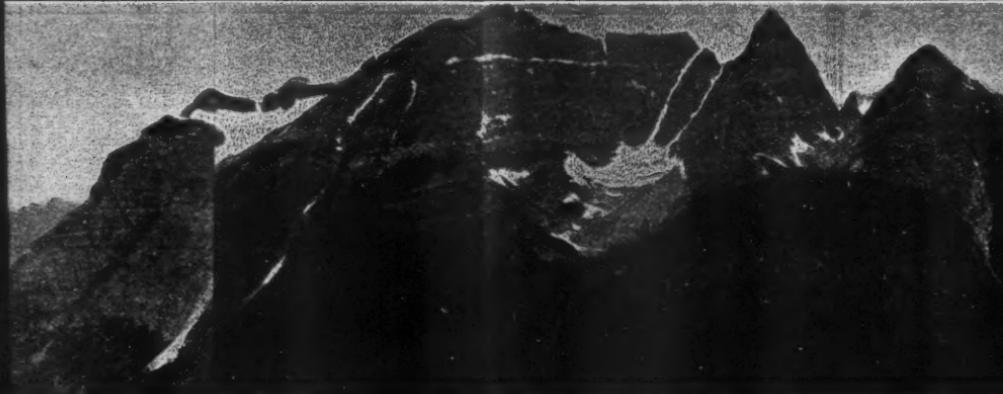
ooking north-northwest from across the valley of the Big Salmon. The main peak does not show in this view: it should appear above



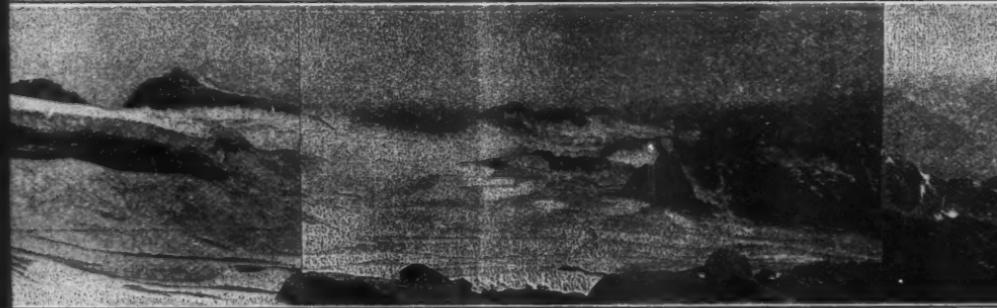
taken from a point 7500 ft. in altitude at the north base of the main peak. The view extends from south-southwest to north-

the long, flowing glacier in the left foreground drains, probably leads to the branch of the Big Salmon descending from Jarvi

Two Towers



Kitchi, looking north-northwest from across the valley of the Big Salmon. The main peak does not show in this view; it should appear



It. Kitchi taken from a point 7500 ft. in altitude at the north base of the main peak. The view extends from south-southwest to

snout of east glacier
Mt. Ida

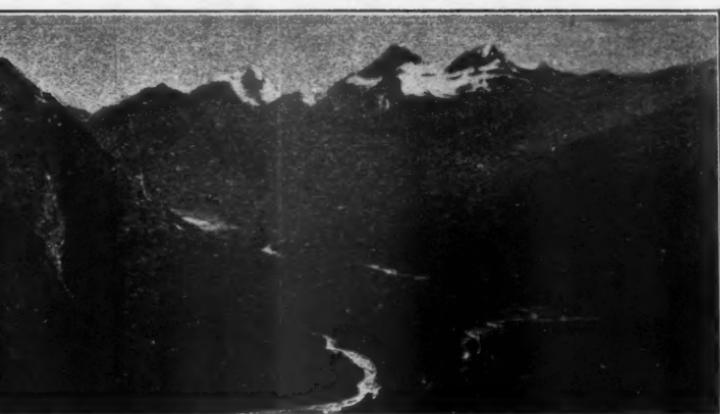


Photo by Mary L. Jobe. Copyright, 1914.

Big Salmon River

ould appear above the central amphitheater, as shown on Fig. 6.

— Providence Creek



Photo by Mary L. Jobe. Copyright, 1914.

thwest to north-northwest. The deep valley in the right foreground,
ding from Jarvis Pass.